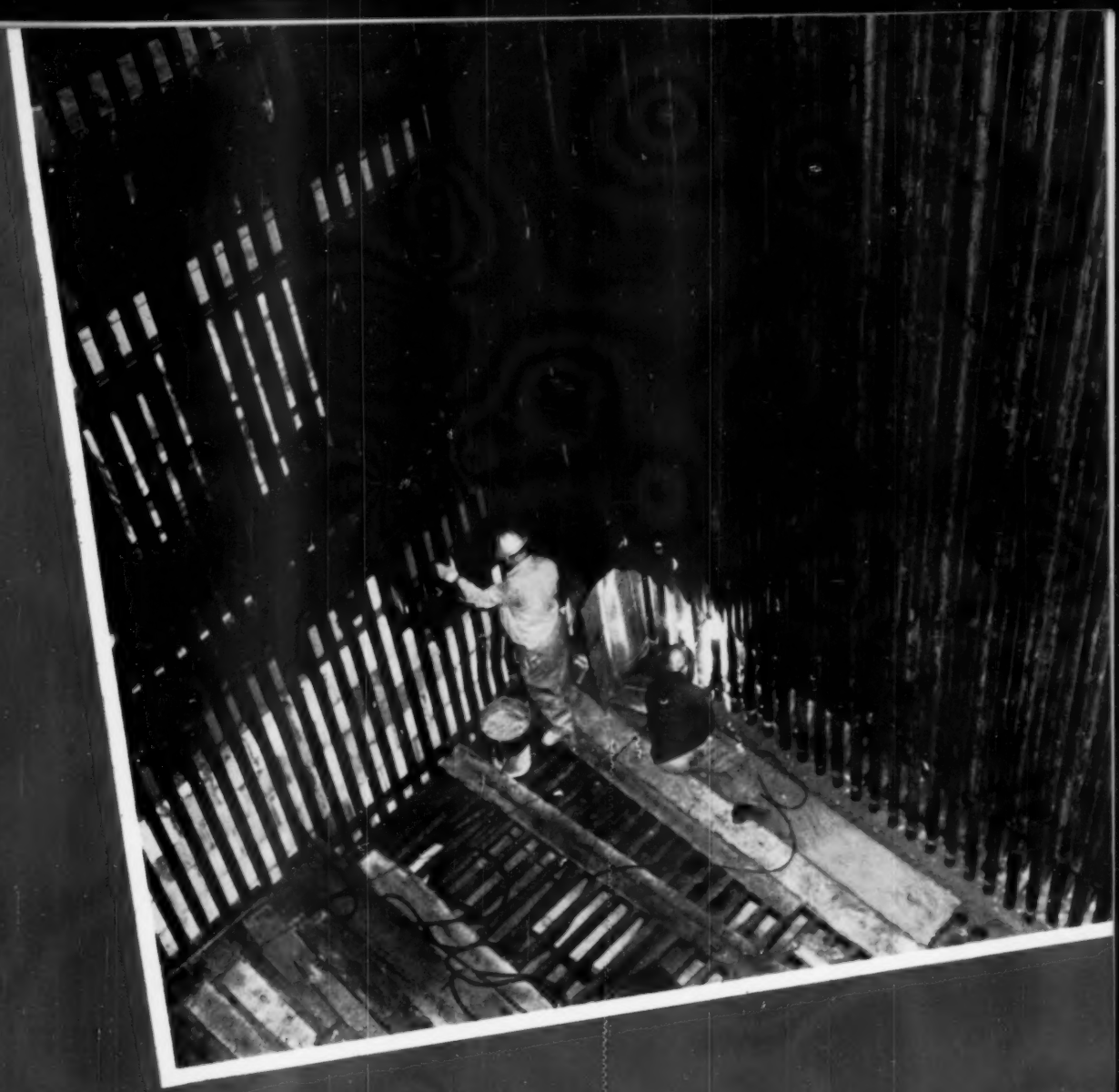
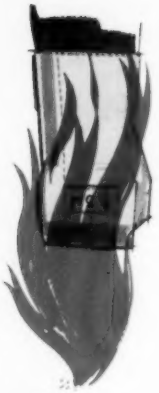


Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • MARCH, 1958 • 50¢

Published By Alfred M. Best Company, Inc.



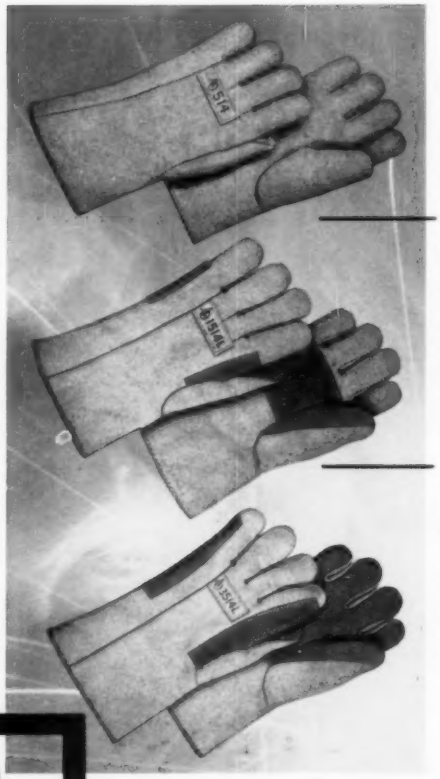
Asbestos Gloves

Thanks to American Optical's
"Operation Seam-Elimination"
More Comfort... Longer Wear with

AO Asbestos Gloves

Because seams have always been the most vulnerable part of a glove, American Optical in our "Operation Seam-Elimination" has done away with as many seams as possible. Result: our asbestos gloves now have only three seams, as compared to as many as eight on most gloves. For example, there's only one seam down the back whereas other gloves have four. There are no seams across the front and back of cuffs — no seams down the sides of the hand. THIS, COMBINED WITH AMERICAN OPTICAL'S QUALITY UNDERWRITER'S GRADE ASBESTOS MEANS LONGER WEAR AND FEWER REPLACEMENTS. More for your money, in other words.

This important pattern development is available on all American Optical asbestos gloves — whether plain, palm leather faced or asbestos reinforced palm — 11", 14" or 23". Lined or unlined.



514 Plain Asbestos Glove

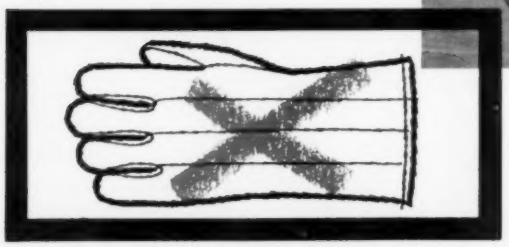
14 inches long (Available 11 inches long as NO. 511; 23 inches long as NO. 523) Note only 3 seams. Lined or Unlined.

1514L Lined Leather Reinforced Asbestos Glove

Reinforced on palm and thumb with chrome-tanned split leather. Specially tanned to resist heat (Available 11 inches long as NO. 1511; 23 inches long as NO. 1523) Lined or Unlined.

3514L Lined Full Leather Reinforced Asbestos Glove

Reinforced from wrist to tips of fingers on palm side with chrome-tanned split leather. Recommended especially for hot mill and coil tying in steel mills. Lined or Unlined.



NO SEAMS

Always insist on AO Trademarked Safety Products. Your nearest AO Safety Products Representative can supply you.

American Optical
COMPANY
SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASSACHUSETTS
BRANCHES IN PRINCIPAL CITIES

(For details, use Key # O-1 on card on page 1)

BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

MATERIALS HANDLING

Lift Truck Maintenance 506
Towmotor Corp. Pocket-size preventive maintenance manual offers information on care and handling of materials handling equipment. Incorporates a handy 32-point check list which helps avoid unnecessary repairs and aids in spotting trouble, with comprehensive, in-plant servicing program including up-to-the-minute "condition" reports. Also re-conditioning plan for re-working older machines.

Materials Handling Devices 507
Merrill Bros. Entirely new catalog contains 16-pages of specific data on complete line of materials handling devices. Included are application drawings, tables, diagrams and engineering data. Of keen interest to Materials Handling and Plant Maintenance as well as Safety Engineers, catalog is most recent and well illustrated in two colors.

New Safety Links 508
E. D. Bullard Co. Bulletin introduces new safety link for use with cranes operating on or near high voltages. Links are rated at same working loads as hooks they support, from ½ to 25 tons, and di-electric strength from 1 to 50 KV. Fatality through cranes contacting high voltage lines can be avoided through use of this insulated safety link.

ELECTRICAL EQUIPMENT

Alarm System 509
Edwards Co., Inc. Folder is replete with illustrations, drawings, circuit layouts, and wiring and installation instructions for battery-operated alarm system. Included are charts on maximum effective distances, a variety of detectors and warning devices. Unit is also adaptable to burglar alarm, brooder alarm, oil burner alarm, and many other uses with the addition of only relay or standard switch.

Emergency Lighting 510
Standard Electric Time Co. 20-page, two color catalog on emergency lighting systems for schools, hospitals, banks, stores, restaurants, and other commercial, public and institutional buildings. In addition to describing these systems, catalog also contains complete information and specifications on all components, fixtures and exit signs. Also includes extracts from National Electric Code requirements for emergency lighting equipment.

Precision Switches 511
Micro Switch. Latest issue of "Uses Unlimited." Many new types of switches shown in this well-illustrated 8-page publication, including plug-in type replaceable in seconds, latest high-temperature switches, etc., and examples of their application to many types of machinery.

General Electrical Equipment ... 512
Wadsworth Electric Mfg. Co., Inc. 116-page catalog for 1958 contains full information on all types of electrical equipment including industrial safety switches, service equipment, distribution panels, wiring troughs and fittings, circuit breakers, etc. Well illustrated with photographs and line drawings. Has complete price lists as well as charts and tables on circuits and capacities.

FIRE PROTECTION

Extinguishing and Detecting Systems 513
Walter Kidde & Co., Inc. 3-color booklet describes and illustrates portable fire extinguishers, built-in carbon dioxide extinguishing systems, smoke detecting and rate-of-rise fire detecting systems for use largely in commercial, institutional, or industrial fire hazard application.

Automatic Detection Systems ... 514
Notifier Corporation. Illustrated bulletin shows latest equipment based on the principles of automation. Operated on standard 115 or 220 volt AC power these systems are designed for use in various public, institutional and industrial buildings.

INDUSTRIAL HYGIENE

Washroom Advisory Service 515
Scott Paper Company. Available without charge to building management, architects, commercial and industrial property owners, this service makes analysis of present facilities to evaluate maintenance costs, lighting, ventilation, heating, traffic flow patterns, etc., with the objective of achieving maximum economy. Described in booklet and catalog form.

Steam Sterilizers 516
Wilmot Castle Company. Well-illustrated bulletin features new line of laboratory and hospital steam sterilizers and autoclaves. Series includes dressing and instrument sterilizers available for either cabinet or recessed mounting and either steam or electric heating.

Hand Cleaning Compound 517
Dennis Chemical Co., Inc. Leaflet describes formula specially designed to remove stains and materials such as paint, lacquer, enamel, varnish, adhesives and airplane dope from hands. Particularly useful in automotive, aircraft, radio and paint industries.

MAINTENANCE

Self-Sticking Markers 518
W. H. Brady Co. Multi-color booklet illustrates plastic-coated industrial markers, with a multitude of uses including pipe and cable marking, aisle, bin, area and column designating. Also featured are non-conductive conduit and voltage markers and easily-read, all-purpose numbers and letters.

(Continued on the next page)

MAIL POSTAGE PAID CARD FOR MORE DATA

SPECIAL OFFER BELOW VALID ONLY FOR THREE MONTHS AFTER PUBLICATION DATE

READER'S INQUIRY CARD

HOW TO GET FREE DATA! **(No Postage Required)**

ADVERTISED PRODUCTS: Just insert the key number shown under each advertisement in the boxes below.
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KEEPING UP WITH RECENT DEVELOPMENTS: Insert the key numbers shown on items in special feature article.

PLEASE PRINT YOUR NAME & ADDRESS

Name _____ Title _____

Company Name _____

Street Address _____

City _____ Zone _____ State _____

March, 1958 **Please send me the following free data**

Free Bulletins (Cont'd)

Steel Floor Plates 519
Ackerman Mfg. Co. New literature deals with physical properties and capabilities of rolled steel floor plates, suitable for use in chemical, automotive, glass and distilling industries, among others. Available in both 11 and 16 gauge stock, plates are anchored in concrete and constructed to eliminate skidding. 4-page booklet gives details of construction and application.

Anti-Corrosive Plastic Coatings . 520
Lockrey-Fater Corp. New folder describes tough vinyl plastic film suitable for interior or exterior masonry, plaster or metal surfaces. Features of product are acid and alkali resistance, easy cleaning and maintenance, and proof against such corrosive elements as salt, smog, dust, mildew and chemicals. Outlines availability in all popular colors and application by brush or spray.

Automatic Paint-Fed Roller 521
The Grigsby Co. Bulletin gives details on new, self-feeding painter, which is portable and needs no other air supply. Consisting of tank and roller connected by flexible, light-weight hose, the painter is operated by filling tank, pumping up, and releasing pressure valve—then painting normally with roller. Explains how it cuts waste and time in coating any surface.

PERSONAL PROTECTION

Fiber Glass Welding Helmets ... 522
American Optical Co. Brochure introduces line of white fiber glass welding helmets, including lift and stationary front models. Gives complete chart of easily replaceable parts as well as charts on types of shades best suited to many brazing, cutting and welding operations. Brochure punched for ring binder.

Impregnated All-Weather Clothing 523
Jomac Inc. Full details, illustrations and line drawings of reinforcement features are contained in this new two-color bulletin. Head-to-toe, foul-weather protection is objective of this line of work garments which are polyvinyl chloride-impregnated for added protection and long life. Ideal for firemen, maintenance workers, guards, construction and pipeline workers, farmers, and gas, telephone and electric utility repairmen.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Reader's Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	*Subject*
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
111	Foot Protection
114	Welding Helmets
115	Welding Curtains
	FIRST AID AND PERSONAL HYGIENE
120	Protective Skin Cream
121	Skin Cleansers
122	Sanitary Drinking Facilities
124	Salt Tablets
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
132	Hand Drying Facilities
133	Disinfectant—Deodorants
134	Hearing Testers
135	Hearing Protectors
136	Noise Analysis
137	Emergency Rescue Kits
	FIRE PROTECTION
141	Safety Cans
142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
148	Watchmen's Control Systems
149	Extinguishing Ash Trays
	LIGHTING EQUIPMENT
150	Alarms & Warning Lights
154	Emergency Lights
	MAINTENANCE
160	Anti-Slip Floor & Mats
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Materials
165	Paints
166	Industrial Wipers
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
174	Sling & Rope Tester
175	Safety Hooks
177	Plastic Acid-Containers
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
	EDUCATIONAL AIDS
191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
194	Bulletin Boards

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ALFRED M. BEST COMPANY, INC.
75 FULTON STREET
NEW YORK 38, N. Y.

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Editorial and Advertising Offices:
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Ingalls Building, 6 E. 4th St.
CINCINNATI 2, OHIO

NEW ENGLAND
WALTER A. SPANGLER, Manager
13 Stanhope Street
BOSTON 16, MASS.

EASTERN
DAVID R. BEASLEY, Spec. Repr.
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ARTHUR A. EBERLE, Spec. Repr.
ELLIOTT SEWARD, Spec. Repr.
75 Fulton St., New York 38, N. Y.

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 115, Number 3 **March, 1958**

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Cover picture by courtesy of U. S. Steel Corp.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

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it's SAFE to say

● SAFETY NEEDS DRAMATICS

FOR many years, subscribers have asked SAFETY MAINTENANCE for methods of dramatizing accident prevention to the point of heaviest impact. Safety, like a state of health, is not always dramatic whereas accidents, like sickness, make a stronger impression.

Fortunately, we need not encourage an accident in order to emphasize the multiple advantages of safety. Many plants have discovered a means of injecting dramatic impact into accident prevention effort and nowhere is this easier than in the area of eye protection.

A specific case in point is described in a recent issue of "The New York Times." We are told that it is no longer necessary to imagine life without eyesight; on the contrary, a number of leading industrial firms are demonstrating, through a plan involving simulated blindness, that the loss of eyesight is more than just another of life's little misfortunes. It is a shattering tragedy which can be proved even to those enjoying the blessings of perfect vision.

For several agonizing weeks, according to the "Times," a safety director in Ohio did not know if he would ever see again. Later he did recover eyesight, but while temporarily blinded, he developed a training device he called, "Let's Pretend."

It is a do-it-yourself training program that puts employees through the experience of being blind. Kits containing a number of items—a cigarette, shoelaces, cloth swatches, tooth brush and toothpaste, **plus** a plastic opaque blindfold.

While in total darkness, the trainees listen to a recorded message discussing the daily routine of a blind man.

Ordinary steps in starting a new day—finding misplaced house slippers, selecting clothing by feeling the material, choosing shoes that are mated by feeling the laces—all are described and attempted. Among the most difficult tasks are pouring the breakfast coffee and lighting a cigarette!

Following the recorded message describing a day of total blindness, the emotional response of the trainees has tremendous force. In fact, persons who have taken part report an unnatural hush lasting several minutes.

Here is ultimate drama infused into an accident prevention campaign with the result that great impetus is given to the use of protective eyewear to prevent vision loss. More important, it is a lasting impression stronger than all the dull statistics presented at too many safety meetings.

Distribution of this dramatic sight vs. blindness program is sponsored by the National Foremen's Institute, a division of Vision, Inc., publishers and developers of various management services.

Why can't we dramatize foot injuries and other forms of simulated accidents? Showing always has more impact than telling!

SAFETY GOGGLES | SAFETY SPECTACLES

FORM FITTING COMFORTABLE

WATCHEMOKET eye SAVERS

LIGHTWEIGHT EASY TO WEAR

Model 440SV Methacrylate Lens
Model 441SV Acetate Lens

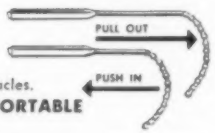
Soft Vinyl Frame

"Stac-Vent" — a new principle in goggle ventilation.
Clearer Vision . . . More Comfort . . . Greater Safety.
Large frame fits comfortably over all prescription glasses.
Lenses optically correct — shatterproof — easily replaced.
Also available with regular or screen ventilation.

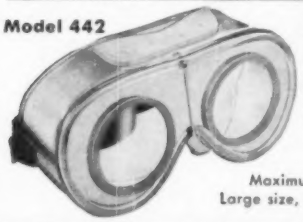
Model 415

Tuc-Away

Shatterproof, optically correct lenses.
Easily replaced . . . snap-in, snap-out.
In clear, light, medium or dark green.
One size and model fits every worker.
Wearer adjusts and maintains his own spectacles.
WORN BECAUSE THEY ARE COMFORTABLE



Model 442



Soft Vinyl Frame 50 mm Round Hardened Safety Glass Lenses

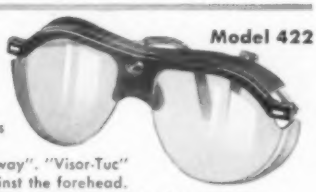
Maximum protection where there is extreme abrasion.
Maximum comfort and minimum weight.
Large size, fits over all prescription glasses.

Visor-Tuc

Model 422

New Over-Eyes Protection

Almost 100% protection, plus all the comfort of "Tuc-Away". "Visor-Tuc" fits snugly against the forehead. Shatterproof Eye Savers lenses interchangeable in Tuc-Away Model.



Model 492

Welding Goggle Opaque Black Soft Vinyl Frame

Furnished with replaceable 50 mm round, Federal Specification, filter lens shades 3, 4, 5 or 6, protected inside and out by cover lenses.

Split Joint

Model 80

Split Joint Frame makes changing lenses a simple operation, no heating to distort frame. Retrax temple easily adjusted — One size Standard 47 mm drop eye lenses. Removable clip-on side shields available.

Quick, easy replacement of:
PLASTIC SAFETY LENSES
PRESCRIPTION LENSES
PLANO SAFETY GLASS LENSES

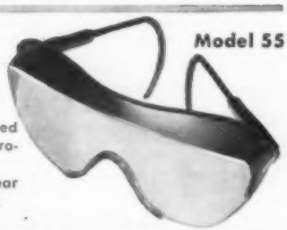
Model 99

Cheepee One-Piece Goggles

Close fitting, lightweight, comfortable.
Optically correct . . . no distortion.
Available in clear or medium green.

Methaspec Eye Shield

Model 55



Optically correct, one piece, curved Methacrylate Eye Savers Lens provides heavy impact protection.
Lens is .080" thick, available in clear or light, medium and dark green.

For details, see your Authorized Eye Savers Supplier or write direct

Quality Eye Protective Equipment ***Made by the Leaders in Plastics***

WATCHEMOKET OPTICAL CO., INC.

232 West Exchange St., Providence 3, R. I. • In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26, Winnipeg

(For details, use Key # O-6 on card on page 1)

the future shows

Philadelphia, Pa. *March 5–6*

Twenty-fourth Annual Regional Safety & Fire Conference and Exhibit (Bellevue-Stratford Hotel). Harry H. Verdier, Executive Director, Safety Council, Chamber of Commerce of Greater Philadelphia, 121 S. Broad St., Philadelphia 7, Pa.

Boston, Mass. *March 17–18*

Thirty-Seventh Annual Massachusetts Safety Conference and Exhibit (Hotel Statler). Bruce Campbell, Manager, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Los Angeles, Calif. *March 17–19*

Fifth Annual Western Safety Congress & Exhibits (Ambassador Hotel). Joseph M. Kaplan, Manager, Greater Los Angeles Safety Council, 3388 W. 8th St., Los Angeles 5, Calif.

Dallas, Texas *March 17–19*

Nineteenth Annual Texas Safety Conference (Adolphus Hotel). W. F. Leonard, Jr., 2828 N. Haskell, Dallas, Tex.

Ft. Wayne, Ind. *March 18–19*

Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, Manager, Safety Council, Chamber of Commerce of Fort Wayne, Ft. Wayne 2, Ind.

Gainesville, Fla. *April 9–11*

Fifth Annual Conference on Accident Prevention Engineering (University of Florida). W. R. D. Nickelson, Conference Coordinator, Engineering & Industrial Experiment Station, Univ. of Florida, Gainesville, Fla.

New York, N. Y. *April 14–18*

Twenty-Eighth Annual Greater New York Safety Convention and Exposition (Statler Hotel). Greater New York Safety Council, 60 East 42nd St., New York 17, N. Y.

Detroit, Mich. *April 15–17*

Twenty-Eighth Annual Michigan Safety Conference (Sheraton Cadillac Hotel). Ben Duguid, Executive Secretary, 16130 Northland Dr., Detroit 35, Mich.

St. Louis, Mo. *April 15–17*

Annual American Welding Society Show, (Hotel Statler). Robert T. Kenworthy, Exposition Management, 12 E. 41st St., New York 17, N. Y.

Atlantic City, N. J. *April 19–25*

Industrial Health Conference of the Industrial Medical Association, American Association of Industrial Dentists, American Association of Industrial Hygiene, American Association of Industrial Nurses, and American Conference of Governmental Industrial Hygienists. For information write to: Industrial Health Conference, Room 2029—Temporary R, 300 Independence Ave. S.W., Washington 25, D. C.

Columbus, Ohio *April 22–24*

Twenty-eighth Annual All-Ohio Safety Congress & Exhibit (Deshler-Hilton Hotel). Arthur W. Moon, Congress Manager, Room 611, Ohio Depts. Bldg., Columbus 15, Ohio.

Norfolk, Va. *May 1–3*

Virginia Safety Association Conference (Monticello Hotel). James T. Wadkins, Mgr., Virginia Safety Association, 2501 Monument Ave., Richmond 20, Va.

Allentown, Bethlehem, Easton, Pa. *May 5–7*

Thirty-first Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Buffalo, N. Y. *May 6–8*

Eighteenth Annual Western New York Safety Conference & Exhibit (Hotel Statler). Clifford H. Seymour, Executive Secretary, Western N. Y. Safety Conference, P.O. Box 315, Niagara Falls, N. Y.

Asheville, N. C. *May 14–16*

Twenty-Eighth Annual North Carolina Statewide Industrial Safety Conference (Battery Park Hotel). H. S. Baucom, Director of Safety, N. C. Industrial Commission, Raleigh, N. C.

Duluth, Minn. *May 22–23*

Thirty-fourth Annual Conference, Lake Superior Mines Safety Council, Allen D. Look, Secretary, 329 Federal Building, Duluth 2, Minn.

Cleveland, Ohio *June 9–12*

Eighth National Materials Handling Exposition (Public Auditorium). Clapp & Poliak, Exposition Management, 341 Madison Ave., New York 17, N. Y.

Switch to Morton Yellow Salt Tablets for fast relief without feeling ill!

You and your employees will like Morton Yellow Impregnated Salt Tablets. These are non-sickening salt tablets, made by a special patented process that uniformly coats the individual salt crystals to control the dissolving rate of the tablet. This controlled dissolving rate means that essential body salt lost through perspiration begins to be replaced, immediately but at a gradual, non-nauseating rate.

When there's danger of Heat Fatigue, workers feel better, work better and more safely, when they take Morton Yellow Impregnated Salt Tablets. Remember, they do not cause stomach upset.

Complies with Federal Specifications SS-S 31f for Type 111, Class C Impregnated Salt Tablets. U.S. Patent No. 2,665,236. Patented 1954 (Canada) No. 501,316.

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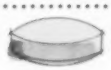

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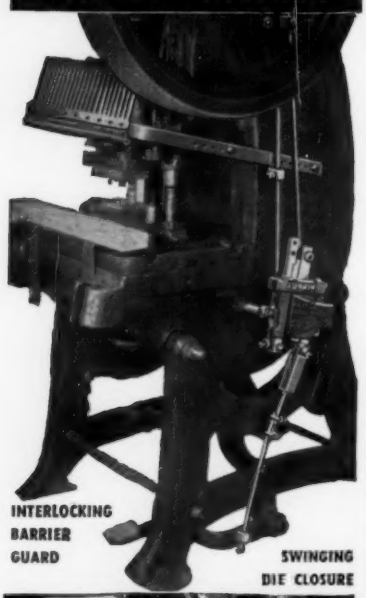

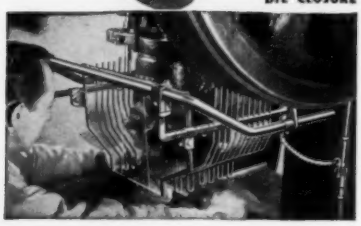

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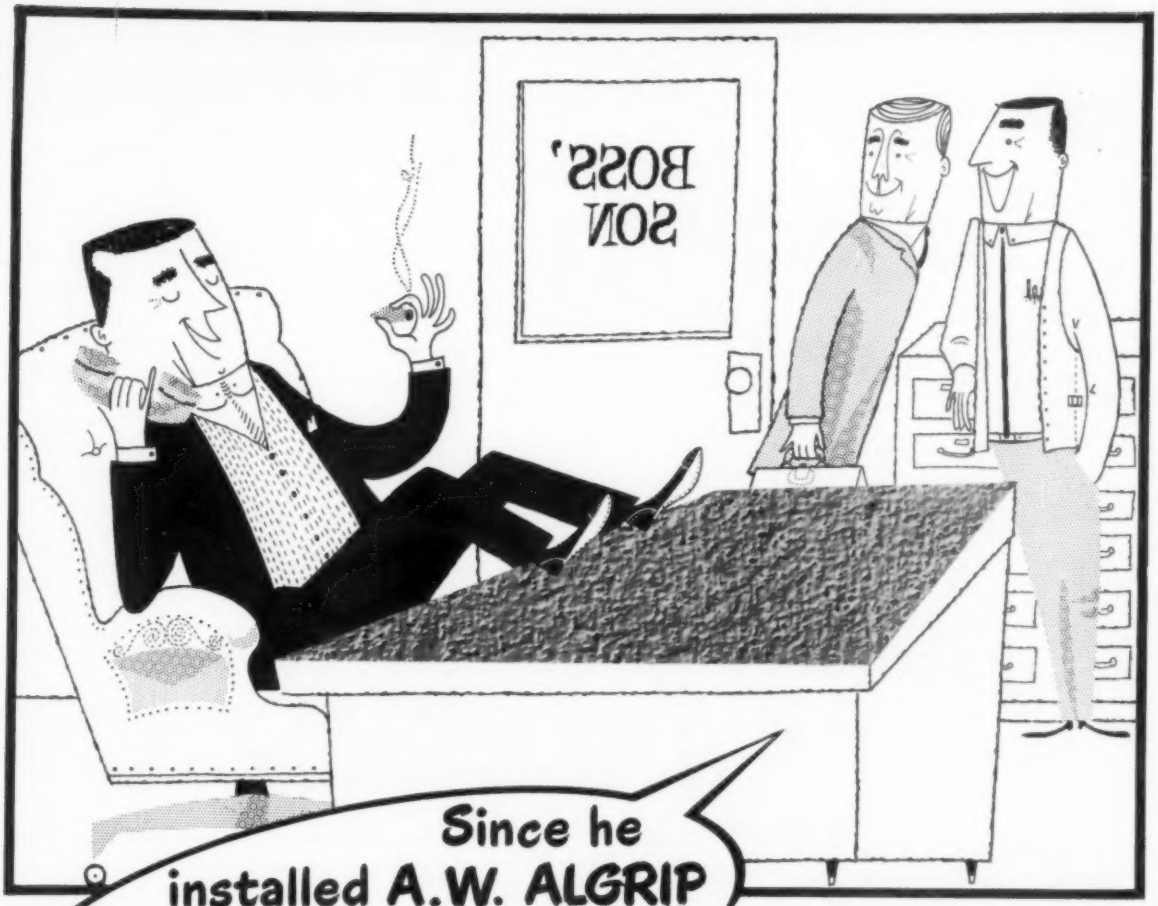

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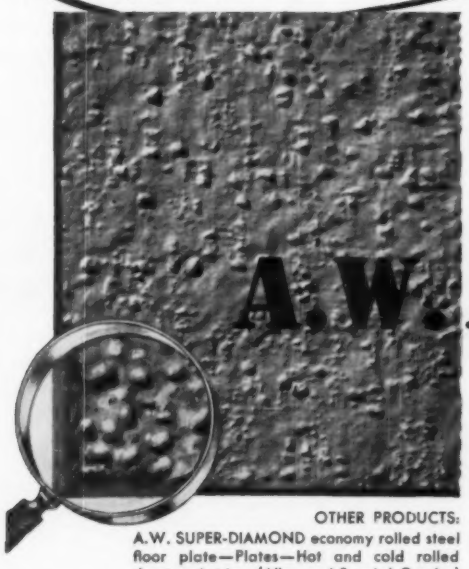

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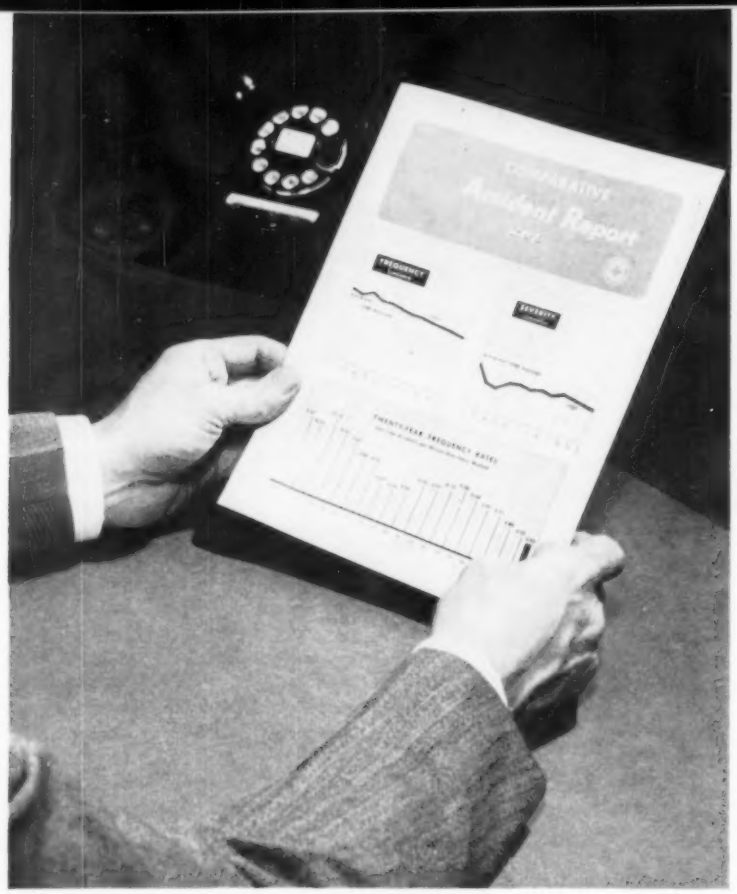


SAFETY IS NO FREE LUNCH

Who picks up the tab for accidents?
YOU do!
So it's up to YOU to prevent your own losses.

by **S. F. SPENCE**
Director, Safety & Loss-Prevention
American Cyanamid Company

Some people may tend to believe that the occurrence of accidents is more or less normal, and that money can be gained through the magical effects of something called "safety and loss-prevention." However, destructive occurrences called "accidents" **should not reflect the norm.** In fact, industry must pay very close attention to the avoidance of accidents and the control of accident loss costs if it is to meet its responsibilities in this civilized age.

Designing and operating a company or plant in such a way as to avoid the possibility of accidents is an economic necessity as well as a prime obligation to society. **This is our obligation in industry.** We do not work for safety in all areas of our operations in order to reduce our insurance premiums. That is a case of putting the cart before the horse. We work for safety so that we can plug up the loopholes which provide unnecessary losses and then we have insurance to take care of those accidental losses which, try as we might, we cannot seem to avoid from time to time. While the reduction of insurance premiums is not our purpose in accident prevention and control of consequential losses, it is of course very true that **accidental loss control does contribute to reduction in our insurance premiums.**

Safety and loss-prevention can be broken down into three principal elements: (1) Accident prevention; (2) Injury or damage reduction; (3) Salvage—production recovery—rehabilitation.

Accident Prevention: This phase of safety and loss-prevention covers everything that we do in our companies, from engineering review of the flow sheet of a new installation on, to produce a safely operable and safely maintainable facility. It covers the development of systems and procedures on safety and loss prevention to fit in with the over-all plant management's systems and procedures. It includes safety organization headed by the plant manager, supervisory development, employee placement and training (and that very important ingredient—the instilling of **safety consciousness**), maintenance and inspection, and all of the other facets of a program which have to do with the actual **prevention of accidents.**

Injury or Damage Reduction: Try as we might to avoid them, we do have accidents from time to time. This phase of the activity has to do with the reduction of

destructive effects. It covers personal protective equipment, pressure relief on vessels, automatic sprinklers, volunteer fire brigade organization in the plant, and such secondary protective details as the use of tarpaulins in fire-fighting, the use of skids in warehouse or stock piling, and myriad other details.

Salvage—Production Recovery—Rehabilitation: In the case of injured personnel, this definitely would apply to injured employee rehabilitation, and placement of the physically handicapped. In the case of property damage, it would apply to prompt clean up and survey and the reconditioning of damaged equipment.

Production recovery would, of course, contemplate such details as the availability of spare parts and stand-by units for critical items of equipment, the lining-up of other producers of components, and the expediting of replacements.

The area of plant rehabilitation applies to those accidents of serious consequence such as explosions and fires, which result in the necessity for reconstruction, and require us to incorporate, in the new construction, the lessons which we have learned in our disastrous occurrence.

These items would include the following:

(1) Process change to provide greater safety

(2) Type of building construction (outdoor construction versus enclosed building construction.

(3) Plant location—to localize effects and thereby minimize future loss possibilities

The larger a company becomes, the more it becomes its own bearer of the costs of accidental losses. In principle, it can be said that all normal losses we stand directly; the very high costs are spread and these we share with the rest of industry through insurance.

In no instance can we shrug off the cost of accidental losses by saying "The insurance company pays." **There is no such thing as a free lunch. We save ourselves money by preventing our losses.**

Employee Injury Costs

Workmen's Compensation Insurance is a statutory insurance, and rates (cost per $100 a payroll) are supervised in each state. A few states have monopolistic state insurance funds, and no private carrier can write compensation insurance therein. In the remainder of the states, private compensation carriers are permitted to do business in competition with each other, and with existing state funds.

There are certain plans which an employer can choose (and which in Pennsylvania is imposed upon risks above a given size), which work as an incentive for him to reduce his compensation costs by reducing his compensation and medical losses. One of these is the Retrospective Rating Plan, which establishes a minimum and maximum premium based upon rates, payroll and losses, and through which the compensation premium for the year is most directly affected by the losses. It acts as an incentive to the employer to cut down his compensation losses. It might be considered as being one of the most obvious savings possibilities.

There is in effect in all states, for risks which qualify, an imposed Experience Rating Plan, which acts as a basic incentive to the employer to reduce his compensation loss costs. Stated in simplest terms, the principle of this plan is to provide for a rate credit to the employer whose ratio of losses to payroll has been less than the industry average over a period of time (usually the three years ending one year previous to the policy date) and for a charge added to the rates of the employer whose experience has been worse. Credits and charges vary according to deviation from the average, and are governed by certain technical factors. One important factor concerned in the computation of the experience modification (charge or credit) is the number and value of the losses (compensation and medical). "Normal" losses enter the experience at full value, while "excess losses" (those above a given value) are entered on a scale-down basis. This acts to penalize the employer who has a large number of average-value losses, while to some extent providing relief against the full impact of the occasional high severity case. The Experience Rating Plan, and such arrangements as the Retrospective Rating Plan, where the latter is used, serve very effectively as incentives to management in its effort to reduce employee injury losses.

The compensation and medical costs attending an employee injury, which are charged against the employer's compensation insurance experience, actually are usually a minor part of the costs attending an accident which results in such injury. The other costs sometimes are lost sight of, but they are true costs, and in most cases they are measurable. Sometimes they are called "indirect" or "uninsured" costs. These "indirect" and "uninsured" costs would include such items as shown in Table 1.

TABLE 1: Indirect, Uninsurable Costs of Accidents

(1) Time lost by injured employee paid by company in travel to physician, clinic, or hospital.

(2) Transportation costs borne by company.

(3) Time lost by other employees at time of accident.

(4) Repair to damaged equipment.

(5) Damaged product.

(6) Production loss of equipment damaged.

(7) Departmental production loss resulting from confusion, lowered morale, etc.

(8) Investigation time.

(9) Clerical time in reporting and other details.

(10) Employee temporary replacement costs.

While human suffering cannot be evaluated for the ledger sheet, it is our most important reason for accident prevention. At the same time, a consideration of the foregoing brief discussion points up certain specific economic effects of this phase of management planning and action.

Fire and Explosion, Boiler and Machinery

As stated before, the larger an insured risk becomes, the more it tends to become its own underwriter of accidental losses. Insurance plans vary widely, but generally, as we said, we stand the cost of our normal losses, and share with the rest of industry the excessively expensive losses. Through well directed loss-prevention, we save ourselves money. Without this specialized management effort, we might find that our uncontrolled accident losses would be putting us out of business.

Designing and operating our companies in such a way as to avoid the possibility of accidents is an economic necessity as well as a prime obligation to society. This is nobody else's responsibility—it is ours. Only we can do it. It cannot be abrogated, nor can it be delegated to the wisdom, pressure or follow-up of governmental agencies, insurance companies, or anyone else. While we cannot depend upon these outside agencies to do our work for us, or to shoulder our responsibilities, it is most definitely a fact that we must solicit all of the help from them that we can, and should use their guidance to the utmost in designing and conducting our safety and loss-prevention work. In no instance can we shrug off the cost of accidental losses by saying, "The insurance company pays." There is no such thing as a free lunch. We save ourselves money **only by preventing our own losses.**

From an address presented at the 7th Semi-Annual Meeting of the Manufacturing Chemists' Association, Inc.

Mammoth Sign Program For Conn. Toll Road

More than one million dollars worth of all-aluminum highway signs, supporting structures, and road markers have been constructed in the largest single, unified highway sign program in the nation, designed to make the new 129-mile, $460 million Connecticut Toll Road one of the safest and most clearly marked turnpikes in America.

Some 4,000 dark blue and dark green signs with intensely reflective letters, and employing a number of highway sign advances, will guide motorists on the new highway, and its many interchanges and four-leaf clover intersections. There will also be about 3,000 two-piece trailblazers, distinctive emblems with arrows which point the way to the superhighway along its feeder roads. In addition, 12,000 delineators—small silver and amber-colored prismatic "cat's eyes"—will clearly mark the shoulders of the roadway and all curves and intersections. All of the reflective letters, numerals, and borders on the signs are demountable for easy maintenance. At night, prismatic optical lenses set into all letters, numerals, and borders will cause them to shine almost as brightly as car headlights.

A number of highway sign advances incorporated in the Connecticut Toll Road program include extensive use of interlocking aluminum extrusions developed to provide maximum strength and durability. About 440 of the signs employ a new type of special reflective sheeting on the background which multiplies the ability of the entire sign to catch the eye of motorists traveling at high speeds. Some 330 brightly illuminated fluorescent signs installed on 110 overhead steel spans and 87 cantalevers will help direct traffic at toll booths and special interchanges.

The giant sign program involves approximately 200,000 lbs. of aluminum for the signs, and 500,000 lbs. of steel for the sign support structures. Mobile equipment in the sign erection force's fleet of 45 vehicles includes self-propelled overhead cranes, bulldozers, trucks, tractors, and four-wheel drive earth auger trucks which have drilled as many as 485 foundation holes in a single day.

Completed late in December, the new highway will form a busy, major link in the proposed Maine to California turnpike system. It extends from the New York line near Greenwich in the southeast corner of the state east along the shore of Long Island Sound, and winds northeast to Killingly on the Rhode Island border.

Picture by courtesy of Federal Sign & Signal Corp.

Expecting an Order?

You'll get it quicker if your postal delivery zone number is on your order blanks, return envelopes, letterheads, etc.
The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address—place it after the city, before the state.

THE HOW AND WHY OF A

by **Dr. ROBERT FOSTER ASH**
Visual Consultant
International Business Machines Corp.
Endicott, N. Y.

Directors of industrial relations, industrial psychologists, illuminating engineers, ophthalmologists and optometrists have for many years stressed the importance of correcting visual deficiency in industry and, through their work, have further established its significance as a research problem.

Members of the opthalmic professions are often inclined to hold inadequate vision responsible for most of the production and accident woes of industry. But safety engineers know that accidents are also caused by carelessness, lack of adequate guards, lax teaching of safety precautions for each operation, noncooperation of workers concerning safety glasses, safety shoes, etc., emotional and psychological factors, perhaps chance, as well as vision. While vision alone, then, is not the panacea for all industrial problems, it is important.

The emphasis of many vision programs is placed on increased production. We feel that production will inevitably reflect our efforts if we gear our program to safety, personal comfort and welfare of the workers. Better human relations is the one and only motive.

For instance, when our vision program was set up no one in top management and not one of the department managers spoke or thought of the program in terms of getting a few more pieces, per hour, per man, nor have they since. No worker thinks it is a nice little scheme to speed up the work. Over the years the workers have found that we don't do anything **to** them, we do something **for** them; that we are doing this to help them, if they need help, not alone in working comfortably and safely within the plant but in reading at home, in driving their cars, etc.

Even though our vision program is concerned with the general welfare of the workers, we like to feel that the results of our efforts are

Tips for A Successful Vision Program

1. One week before we give the vision tests a member of the safety department and I visit the manager of a department. We explain to him what we are going to do and what we hope to accomplish; that our primary motive is to help him, the manager, do an efficient and safe job of running his department and to help his men to work comfortably and safely. Above all, while we stimulate him into believing something big and effectual is going to take place we don't let him down with a weak follow through.

We assure him that all members of his department will be notified concerning their skills within one week after the tests are made. We answer his questions and we are sure we have his enthusiastic cooperation before we start. Then the manager shows me the various operations in his department. I note the critical working distances and what the workers do with their heads, eyes and hands. Any employees with known uncorrectible visual problems are pointed out to me.

(Continued on page 17)

manifested in production. Many of the benefits do not lend themselves to dollars and cents measurement, with exactitude, any more than does preventive medicine. The most dramatic way to prove the program's worthwhileness would be to put the program in reverse; to remove the corrective glasses, for a period of time. That would not be practical because we would lose fingers and turn out too much scrap. Let this suffice. We do know that anything that benefits the workers helps the business and vice-versa.

We do not wish to quarrel with any companies that do emphasize increased production through their vision programs. Curiously enough, we probably all arrive at the same degree of achievement, production-wise. We simply prefer our human relations approach.

grams and have, from time to time, added innovations of our own which seem to work best for us.

Since our primary motive is to see what visual tools each employee has and to help him do a day's work safely, efficiently and comfortably, our idea is to give the individual most of the attention. If he has good eyes, we should tell him. If he is developing a visual problem that may cause trouble later, we should warn him about that, too. If it has already caught up with him, we should apprise him of the importance of seeking immediate professional advice and aids from someone of his own choosing.

The object of an eye program should not be that of placing more glasses astride more noses; but we must not lose sight of the fact that the need for corrective glasses in industry is constantly on the in-

VISION PROGRAM

EYE PROTECTION SERIES
other articles Feb. & April

The progressive shift in the age distribution of the population is constantly bringing to the fore, industry's responsibility to its ageing employees. Figures prove that older people will increasingly dominate the U. S. population. One of the normal physiological changes in middle life, however, is a general lowering of efficiency in the unaided human eye. We know that with increasing age the visual acuity curve is downward and visual interferences increase perceptibly. There is no excuse today for industry being uninformed concerning the visual adequateness of all workers, not acuity alone, but the assurance that the two eyes are working together, as a smooth functioning team. It can be done at reasonable cost and with a minimum loss of time from the job. Several optical manufacturers supply well planned programs, including testing instruments. We use parts of the enormously valuable material supplied by these pro-

crease. Paradoxically, people's eyes are better today because the race is healthier, but more of us are doing close work.

Someone asked an optometric leader, "Isn't it true that 95% of the population have abnormal eyes?" He replied, "If 95% of the population have anything how can it be abnormal? If 95% had tails, the 5% would quickly buy tails and hang them on." Surely 95% of the population do not have so-called refractive errors but most people operate woefully below their visual potential, particularly in speed and span of recognition and reading rate of comprehension.

We do not concur with the once prevalent practice of "screening out" workers on the basis of pass or fail standards. The term itself, "screening out" is a misnomer in that it implies some inferiority or physical deformity. The need for glasses in our present close work environment is no more a sign of physical inferiority than the need for dentures brought about by our eating soft foods or the fact we wear shoes because we walk on hard surfaces. All these appurtenances simply assist the individual

What's to Be Gained by a VISION PROGRAM?

A vision program is primarily good human relations. When thousands of employees acquire skillful vision, in place of blurred and uncomfortable vision, they are happier in their work, and do better work and more of it. Similarly, when a definite and pronounced physical handicap is uncovered and corrected for so many, in addition to augmenting their personal comfort, there must be an improvement in:

production costs,

material costs,

accident costs,

and general overhead expenses.

to adapt himself to the exacting demands of an accelerated civilization.

The sooner we can take the stigma out of **failing** something the sooner we will have the cooperation of the workers and the closer we will be to having our plants working at each man's best visual efficiency. In no case is a worker ever told that his visual performance is not up to the required standard for his department. IBM feels that its workers are not substandard in any way. If we feel he could be benefited, we simply tell him so.

The company delights in finding places for the physically handicapped. The late Thomas J. Watson, Chairman of the Board of IBM, instituted this policy in the Endicott plant during the early years of the business. The plan has been so successful that more than 300 persons in this classification are now employed.

Blind, legless, armless, deaf, mute and spastic workers are regularly putting in a 40 hour week on all types of intricate jobs. Their efficiency is consistently high and they are taking home the same pay that their more fortunate fellow workers get for the same type of job. What does this mean? It means that we believe there is a place in industry for workers with physical handicaps **so long as we are aware of them.**

Because of this company policy we do not use predetermined industry-wide visual job requirements. We prefer to deal with each worker as an individual human being. We prefer to analyze and interpret his visual findings within the plant, with his own IBM job in mind. If he needs help we try to motivate him to seek it on the basis of his own personal welfare. This within-the-plant professional consultation can be fitted into the framework of all the major visual programs.

The Individual's Needs

We see no sense in having an employee visually adequate to do one job but not for another. Our goal is to have each worker at his top potential visual efficiency, in the plant, driving his car and at home. That doesn't mean everyone will have perfect eyes. It simply means he will be as efficient as professional aids can make him. For instance, a man may be a sweeper in the plant with a visual requirement of low skills but at home he may have a hobby of tying flies. Perhaps some industries don't care what he does at home. IBM human relations extend well beyond the limits of the plant. All advancement, too, comes from within the plant and, understandably, the greatest number of transfers are from "Plant Service"—sweepers and cleaners. For that reason, when a worker proves his ability to do more skillful work, we want him visually capable beforehand of holding down the better job.

We do not believe in a blaze of screening activity for a short time followed by a long period of inactivity. Authorities have indicated that in vision programs, as in safety and other programs, when controls and stimulation are removed the plant soon reverts to its original condition. We concur with them that the program should be continuous, except for the allowance of an adequate period of follow-up between the end of one round and the beginning of another.

Light and Vision

It is quite apparent that increasing intensities and/or better quality of light on and surrounding the work must be of continuous practical moment to any of us concerned with industrial vision programs, for if a man can't see his work he can't do it. And, no matter how good his eyes are, he can't see it if it isn't properly illuminated. We also know that as illumination on the task is increased, the ease and speed with which the task can be accomplished are increased. So, without first providing adequate illumination, none of the objectives of a visual program can be fully attained.

At the risk of opening a Pandora's Box or stirring a Mare's Nest, every worker in the business was asked if he were satisfied with the lighting at and around his work. Were we to make already contented workers dissatisfied, by implication, our good intentions would have been defeated. But we felt that by improving their working environment we could make them even more contented, and so it worked out. 192 major complaints, many more minor ones and dozens of plant suggestions were investigated. Each complaint was checked individually in the presence of the employee and his department manager. In solving problems of general lighting considered thought was given to the aesthetic appearance of the department as a whole and deference was shown to the wishes of surrounding workers who might have different light preferences. An attempt was made to re-design the job to eliminate glare, lessen brightness contrast and otherwise improve working conditions by painting background areas, adding bench lights and overhead fixtures, changing location of present fixtures and re-arranging whole department layouts.

Some plants have found that by better maintenance of fixtures and group changing of tubes general intensity was increased up to 12 foot-candles. That is a remarkable increase to obtain with no expensive engineering changes.

Surely there is no excuse for industry providing inadequate illumination. A large industry recently discovered that it spent $15,000 more for window cleaning per year than it did for maintenance of fixtures and replacement of tubes. In the same survey, they found that in their production areas lighting cost $.08 per square foot per year while goods were produced in the same areas valued at $115.00 per square foot.

Vision programs are good human relations. For instance, employees often stop the technician and me, as we walk through the plant with this: "Say, when are you fellows going to get around to my department? My eyes are bothering me but I want your report before I spend money for an examination." Our employees, also, feel this is another program designed to improve their working conditions. Many, including project managers and department managers have thanked us for actuating them to go for a refraction. They said they had no idea, until getting their new corrections, how great the need was.

The program has encouraged eye consciousness within the plant. It is pleasing to find fewer referrals during each succeeding survey. We would feel we were doing a bad job if this were not true, even though the incidence of development of eye strain, faulty vision, etc., is greater than any other human deficiency. Many of our employees simply go out to see their eye men, when they experience trouble, and don't wait for us to tell them. That is the way it should be and it is another reason for keeping the program continuous.

From an address presented at the 27th Annual Greater New York Safety Convention. Picture by courtesy of International Business Machines Corp.

St. Louis to be Site Of 1958 Welding Show

The American Welding Society will move the site of its annual Welding Show to St. Louis this year, as part of its continuing program to hold the exposition in different areas each year. The sixth in the series will be held at Kiel Auditorium, St. Louis, April 15 to 17, inclusive. During the same week, April 14–18, inclusive, the society will hold its annual technical meeting at the Hotel Statler. An informal Welding Conference, on a less technical basis, also will be conducted. Plant tours in the St. Louis area will round out the program.

The show will break all its previous records for size. A total of 33,664 square feet of exhibit space, the maximum amount available for a show of this type, will be used. It was virtually sold out at the first announcement. About 125 companies will conduct demonstrations of their products. Demonstrations will include actual welding operations of all types. The previous record for size was set last year in Philadelphia when 32,910 feet of exhibit space were used.

Visitors who wish hotel information and program details may obtain them by writing A.W.S. Welding Show, c/o Robert T. Kenworthy, exposition management, 12 East 41 Street, New York 17, N. Y.

Tips for A Successful Vision Program

(Continued from page 14)

2. Findings from the tests, taken by a technician, are turned over to me to be analyzed and interpreted. I divide the men according to their basic skills into three groups:

Group A: those with clear and efficient vision.

Group B: borderline cases; those with beginning problems which we feel we should warn them about.

Group C: referral cases—those whose visual situations have reached the point where we feel they should seek outside professional advice immediately. Referral cases are called into conference with their department manager and me. I explain their apparent condition, they can ask questions, and we try to stimulate them to seek eye care from a refractionist of their own choice. This gives the manager the opportunity of knowing the men who are working with a visual handicap. Whether or not the workers accept our advice is purely voluntary but, surprisingly enough, all of them do.

3. These conferences also give us an opportunity to solve many safety goggle problems. Any worker who mentions to the technician, when his skills are being checked, that he is having trouble with his safety glasses is automatically called into these conferences.

4. Referral cases are given a referral card to take to their eye man. The card contains information concerning the man's operation, what he does—head—hands and eyes, which I obtained when I visited his department. This will help the refractionist in formulating a correction. It is particularly helpful in bifocal cases where ranges of vision are limited.

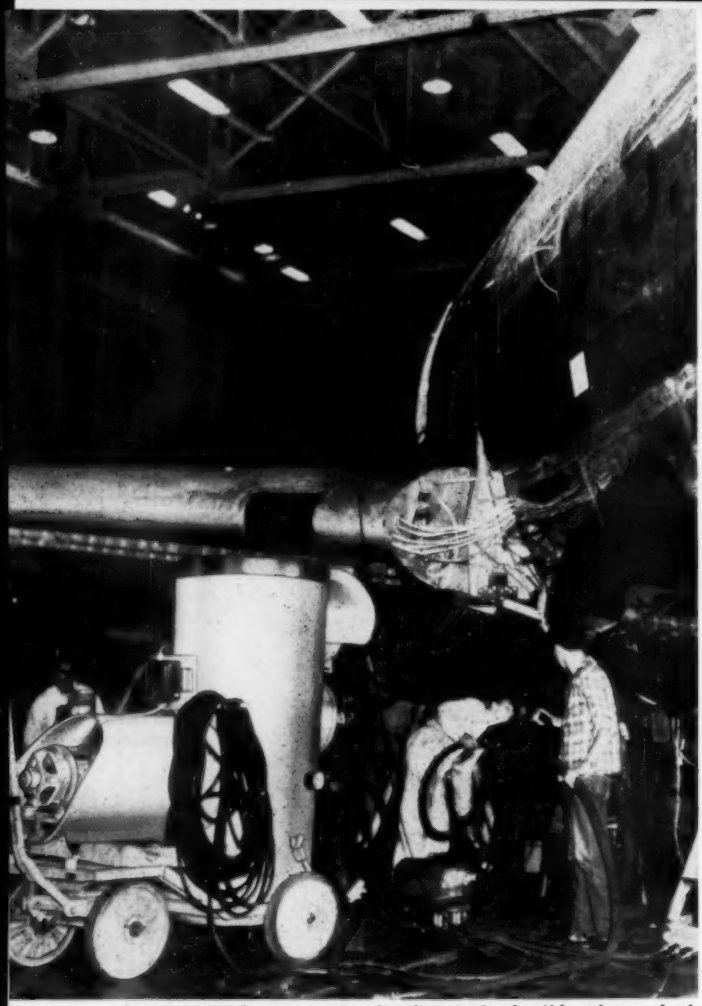
5. After the referrals are talked to individually, the manager is given the notice cards for the good and borderline cases, which he passes out to his men.

When we instituted the policy of notifying all employees of their visual achievements in the tests, it was not then customarily done in industry. Only those workers who scored poorly were notified. However, we felt that if we took a man from his work and subjected him to tests, about which he must be concerned, the least we could do would be to apprise him of his visual adequateness. We reasoned if he had good vision and often boasted that he could see a cow in the next county, it would please him to have us confirm his opinion. And so it turned out.

6. The segregation of the borderline, beginning problem cases developed from a need, as indeed do all improvements. There are many cases which cannot be considered clear and efficient and yet, are not sufficiently progressed to be classified as referrals. We threw them into the big and useful hopper of borderline cases. We presumed that while the situation might not need correction now that, in say six months, after experiencing some of the common manifestations of eye strain, he would remember that we had warned him about his eyes.

In like manner, we decided to talk to the referrals instead of notifying them by card as was done in other programs. We considered a card too cold and impersonal.

7. A vision program cannot work independently of other programs. It must be tied to illumination and safety.



Among countless vacuum cleaning tasks in this plane plant is that of removing dirt, foreign particles from wing section.

DUAL ROLE FOR VACUUM CLEANING

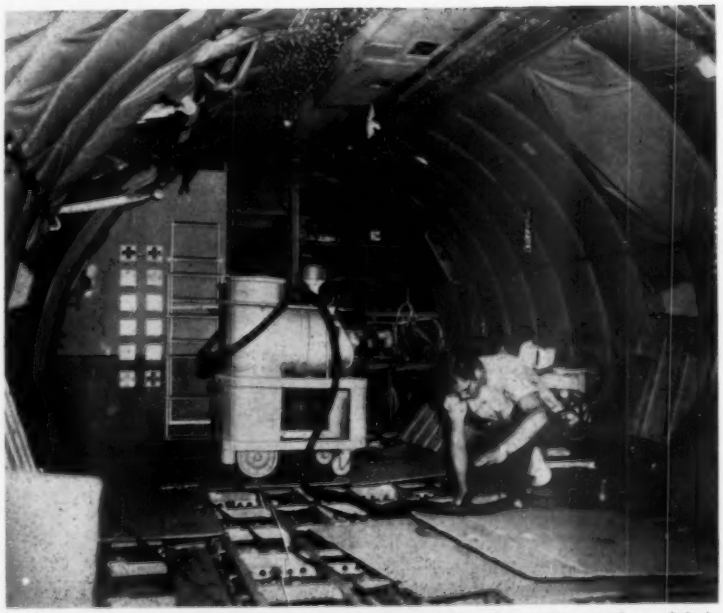
Good housekeeping in an industrial plant not only requires vacuum cleaning but often it is needed for more than just maintenance.

At Boeing Airplane Co. plants in Seattle, Wash., for example, industrial portable vacuum cleaners are used on countless jobs that are more nearly production than maintenance applications.

As one Boeing official points out, the B-52 Stratofortress, while a tremendous airplane, is also a complex and delicate piece of machinery. During all phases of assembly, dirt must be kept away from delicate instruments as they are installed. Also, areas which will be covered subsequently must be thoroughly cleaned.

Of particular concern are metal shavings. A few scraps inside an electrical connector box, for in-

(Continued on page 60)



This portable vacuum cleaner removes small bits of metal, wood or fabric which might have fallen into below-the-deck areas during assembly work.

For a copy of booklet described on opposite page, use Key # O-7 on card on page 1. →

Pittsburgh COLOR DYNAMICS®

improves working conditions in plant that makes 1½ million screws daily

Properly engineered color plan in the E. W. Ferry Screw Products factory increases productive skill and reduces danger of time-loss accidents

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By selecting colors according to this modern system of painting you can improve productive efficiency of your workers, enhance morale and reduce danger of accidents.

An example of such results is found in the Cleveland, Ohio plant of E. W. Ferry Screw Products, Inc. This company produces more than a million and a half fasteners of many types daily for the automotive, airplane and household appliance industries. Besides making conventional screws, it pioneered the development and use of stainless steel screws in volume.

Several years ago the Ferry plant was painted according to COLOR DYNAMICS. The benefits from this are summarized by Robert E. Ferry, vice-president of manufacturing:

"It had been our custom to paint plant and equipment largely for the purpose of protecting them against wear and deterioration. Then we decided to color-engineer our facilities the COLOR DYNAMICS way.

"Focal colors on working parts of machines, in contrast to eye-rest color on stationary parts, help our workers see their jobs better. We have further reduced eye strain by using restful colors on walls and colors with high reflectance on ceilings. This has reduced physical fatigue and improved concentration. Safety colors which denote hazard areas have lessened danger of accidents. All this has contributed to better workmanship. Relations between management and workers has been improved. It is highly satisfying that we have been able to get all these advantages at no greater cost than normal maintenance painting."

You can test the practical value of COLOR DYNAMICS in your plant. Try it on a machine or two, or in a complete department—and see the difference it makes.

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(For details, use Key # O-28 on card on page 1)

I.L.O. Report on World Chemical Industry

Industrial relations in the chemical industries and the protection of workers against occupational diseases and poisoning were the main questions which the Chemical Industries Committee of the International Labor Organization examined at its fifth session, held February 10–21 in Geneva, Switzerland.

Other items in the General Report concerned the action taken by member countries on conclusions adopted at previous sessions of the Committee. Recent developments in the chemical industries were also discussed.

Twenty-one ILO members countries were invited to send representatives of their governments, employers and workers to take part in the work of the Committee. They discussed the various points on the agenda based on reports prepared by the International Labor Office.

It is a fact that "in the chemical industry, where the possibilities of exposure to toxic substances are greatest, the incidence of occupational poisoning and disease compares favorably with that of other industries," according to the report of the ILO on the protection of workers against occupational diseases and poisoning. The report adds that this is a measure of the standard of care and supervision provided with the industry.

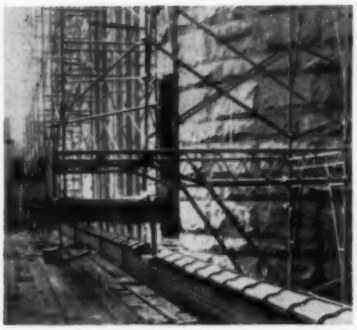
At the same time, the report reveals that "the steady increase in the production and use of chemical substances brings with it an increase in the potential risk to those concerned with their manipulation."

The report makes a detailed analysis of the effects on the human body of chemical substances, by ingestion, by inhalation, or by absorption through the skin. One section of this chapter deals with diseases of the skin and mucous membranes: dermatitis and cancer. It points out that the first essential for preventing industrial diseases is a knowledge of the hazard. It requires the education of all interested parties—workers, management, doctors and industrial hygienists. The investigation of cases and research are indispensable for widening knowledge already existing and for the detection of new hazards which may arise.

The ILO report dealing with industrial relations notes that "good relations between workers in the chemical industries and their employers are essential for industrial progress and hence for the improvement of the workers' standards of living." It underlines, on the other hand, that collective bargaining, which is the crux of the whole question, cannot take place without freedom of association.

One chapter of the report is devoted to the question of the negotiation of collective agreements. Notably, it gives details on the content of collective agreements, their conditions of validity, and their effects and duration, as well as the action taken in certain countries to extend their application. In an examination of the question, the report discusses the problem of the participation by un-organized workers in the advantages obtained by trade union action and summarizes the discussions to which this problem has given rise in interested circles.

Hotel demolition in busy N. Y. sector is speeded up by use of 3700 frames of scaffolding, plus sidewalk bridge.



Here interior shoring between floors supports outrigger I-beams; scaffolding is kept clear of nearby building.

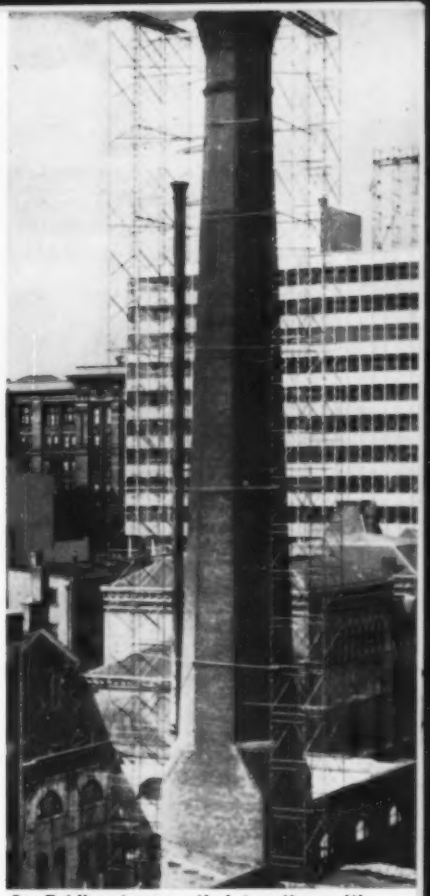
STEEL SCAFFOLDS DEMOLISH ACCIDENTS In Demolition Work

Scientific wrecking of buildings strongly resembles the construction process itself—especially since many of the buildings being razed today are in congested areas where "cannon-ball" wrecking is dangerous. It is not surprising, therefore, that much construction equipment is used in demolition work. This fact is particularly apparent to scaffolding firms, who find that they are renting and selling the same types of steel scaffolding to both construction and demolition contractors throughout the country.

Sidewalk brackets supporting planks are attached to inside verticals of scaffolding, let wreckers work close.

The increased use of construction-type steel scaffolding for demolition possibly got its impetus from building contractors. The reasoning has been: "Anything that speeds materials handling and increases safety on construction jobs should be equally valuable in demolition, where speed and safety are also of primary concern." It should be added that self-supporting steel scaffolding makes the wrecking crew considerably more self-confident than working on platforms supported by the building being destroyed.

Typical scaffolding set-ups for efficient wrecking are about the same as construction set-ups. A sidewalk protection bridge guards pedestrians and forms a broad, stable base for the scaffolding. The built-up scaffolding supports work platforms, ladders, landings, elevators, debris chutes, and even cantilevered work sections extending over or into the building. Tying into the building at about 25 ft. to 28 ft. intervals makes the cross-braced scaffold extra rigid.



Scaffolding towers, tied together with cross members, bracket this smoke stack to permit more rapid razing.

Narrow alleyways, which must be kept open, a familiar problem to wrecking crews, have been bridged in several applications with steel scaffolding cantilevered well above the pavement on I-beams. These beams project through rough openings at several levels, giving an excellent tie-in without support from the neighboring building. This arrangement also provides free space below for quick drive-through loading of debris onto trucks out of the traffic.

In removing the hazards of conventional wood scaffolding from demolition jobs, steel scaffolding has made it possible to use less experienced men safely, according to The Patent Scaffolding Co., Inc. The firm platforms, close to the work face, can be manned by crews without any previous experience on high work when more experienced crews are not available. Guard rails with heavy wire mesh or plywood panelling protect against accidental

(Continued on page 56)

Safety Maintenance SALUTES

A SAFETY IDEA

Silicone Cream Controls Dermatitis

Silicone-based hand cream not only eliminated a serious skin irritation problem at the Stator Electric Company, Woodside, New York, but it also cut their motor rejection rate from 20 percent to almost zero.

Stator produces from 500 to 700 fan and instrument motors, 1/20 to 1/4 hp, daily. About 70 percent of them are silicone-insulated, the rest Class B. All of them utilize advanced insulating components. Until about a year ago, almost every one of the 60 women winding these motors was suffering from one form or another of dermatitis or skin rash, apparently caused by handling these components.

Gloves were tried, but they were too bulky for the delicate winding operation. Rubber gloves were too awkward and Stator also tested various industrial salves and ointments. The rash persisted, and some of the products contaminated the motor insulation to such an extent that rejects rose to as high as 20 percent of total production.

Late last summer, however, Stator tried a silicone-based greaseless liquid, which was simply rubbed into the hands and arms until it disappeared. The motor rejection rate immediately dropped to near-zero. Obviously, what silicone was depositing on the windings was neither a contaminant nor a conductor. And within a few days, the rash disappeared. Apparently the irritants in the components simply slip off the silicone film on the workers' hands, rather than penetrate their skin.

Picture by courtesy of Silicare Div., Revlon, Inc.

Custom Trucks Reduce Costs

"Specially designed industrial trucks will make greater contributions to reduce production costs in 1958, than ever before." So says Shelden K. Towson, president of the Elwell-Parker Electric Company.

In recent years, more and more companies have been specifying specially designed models as opposed to stock models, because of their ability to perform specific handling jobs far more economically and with far greater efficiency.

Many people still think of specialized industrial trucks as completely redesigned vehicles, costing many additional thousands of dollars. Actually, while certain models must be so engineered, many others require only a slight modification of an existing design to meet the required operations. And, where such is the case, the additional cost is very nominal. In either case however, the additional cost spent on a specially designed truck will be returned many times over, if the truck has been properly engineered to meet the job requirements."

Mechanized material handling equipment will prove more important than ever before, including the standard models of industrial trucks.

Metal Industries Injury Report

This report No. 125, contains a detailed analysis of the frequency, severity, and kinds of injuries experienced in the fabricated structural steel and ornamental metalwork industry. Included in the report are analyses of injury rates by a. Product; b. Establishment size; c. Geographic areas and States, and d. Operating departments. The report also details the nature of injuries and parts of body affected.

The report may be obtained free of charge by directing your request to the Bureau of Labor Statistics, U. S. Dept. of Labor, Washington 25, D. C.

THE 9TH PLANT MAINTENANCE SHOW

Maintenance Conference Exhibition

One of the nation's largest expositions and one of the best attended engineering conferences underscore the growing attention by industry to the problems of maintenance. The Plant Maintenance & Engineering Show, presented in the International Amphitheatre, Chicago, Jan. 27–30, included exhibits valued at more than $7,500,000 and almost 10,000 different products. Twenty thousand executives from 30 countries attended.

The concurrent conference on maintenance and engineering, which was held at the Amphitheatre and the Palmer House, attracted more than 2,500 engineers. Sixty-six speakers drawn from 22 states, the District of Columbia and Canada addressed the 25 sessions. Both events were produced by Clapp & Poliak, Inc., New York, exposition management firm.

Some idea of the growth of the field is conveyed by the fact that the show included 120,000 square feet of exhibit space. This was 20 percent larger than the previous record, set at the 1957 show in Cleveland, and 50 percent larger than the last show held in Chicago in 1955. More than 400 of the nation's major companies exhibited their products.

A major innovation this year was the attention in both conference talks and exhibits to pollution of air and water by industrial plants. Ten basic industries held special conference sessions devoted solely to their problems: chemicals, metal fabricating, food processing, foundries, steel mills, metal working, petroleum, pulp and paper, rubber, and research and development laboratories.

Following are some of the important points made by various speakers at the conference sessions.

● L. C. Morrow, *General Chairman of the Conference.*

Today management is better sold than ever on the maintenance function and the opportunities which it offers for saving money, or reducing costs, which amount to the same thing. Management needs the unreserved cooperation of all the people in the plant who serve maintenance. The better informed these people are, the more help they will be able to give.

Just how important is the maintenance function? How big? And what does it mean dollar-wise to the individual plant? While no individual can accept an average as directly applicable to him, averages are useful as indicators. I have estimated that the per-person investment in plant and equipment (not the capital investment which would include capital and inventories) is now approximately $6,250. This means for the plants of the men taking part in the program of this conference there is an investment of $63,662 of plant and equipment per maintenance worker. Certainly the men who are responsible for the care of such large investments in buildings and machinery deserve the best in procedures, systems, tools, opportunities, and management cooperation.

● W. E. Chandler, *Manager of Maintenance Engineering Services*, Organic Chemicals Div., Monsanto Chemical Co., St. Louis, Mo.

The objective of maintenance management is to minimize maintenance costs. A comprehensive long-range program must be developed, maintained, and executed if the objective is to be met. Otherwise, management is faced with a daily game of jack straws, hopelessly manipulating a scrambled pile of interrelated management tools.

The first step in program development is the selection of management tools, such as: elimination of causes, standards, parts programs, screening, planning and scheduling, elimination of emergencies, preventive maintenance, etc.

The second step is the selection of procedures, records, and controls which can be used to determine the extent to which each of the tools should be applied, to see that it is so applied, and to evaluate the results. This step includes: job order systems, cost histories, budgets, backlog analysis, etc.

The third step is the development of the organization. Too frequently this step is attempted first. The most significant elements are: line vs. staff, centralization vs. decentralization, specialization vs. generalization, technical vs. nontechnical, and classical organization principles such as communications, delegation of authority, etc.

The fourth step is the application of the management cycle of constant execution, constant review, and constant replanning to the entire program.

● Ray Kolb, *Head Foreman, Welding Shop*, Whiting Refinery, Standard Oil Co. of Indiana, Whiting, Ind.

Maintenance brings many diversified welding problems. Under service conditions metals wear, corrode, erode and fail in numerous ways. Welding is often used to repair this damage so that a badly needed plant or machine can be put back in operation. When such a job arises there are some fundamental questions that should be answered to assure a successful welding job:

1. What is the base metal to be welded?

2. Does the thickness or geometry of the part present any problem?

3. What welding process should be used?

4. What size and type of welding electrode or filler metal should be used?

5. What welding procedure (i.e. preheat, current setting, number of passes, etc.) should be used?

6. Who is going to do the job?

● L. G. Cannon, *Manager of Power Service*, Commonwealth Edison Co., Chicago, Ill.

How can you save on electric power bills? In industrial rates the two sets of charges—demand and energy—recognize the principle that the greater the use of service by the customer, the lower the unit costs for the utility. Therefore, both the demand and energy charges, as a rule, are blocked to provide decreasing unit prices for greater uses of service.

Your electric utility will be glad to help you decide the best rate for your plant. The problem then is to make the rate work to the end that your plant is purchasing electric service at the lowest possible cost per kilowatt-hour. The trick is:

1. to establish a demand for electric service which is no greater than absolutely necessary, and

2. to use the established demand as constantly as possible throughout the 730 hours of the 30-day billing period.

The ratio between these two is the "load factor" and the higher the load factor, the lower the average cost per kilowatt-hour. For example, a plant operating three full shifts seven days a week can be expected to earn a lower power rate per kilowatt-hour than a plant with only one shift, five days a week.

One or two shift plants can still reduce power costs by such methods as: staggering the operations of large power consuming equipment, replacing motors and other inductive equipment that is oversized and thus lightly loaded, and eliminating waste uses of power.

● M. J. Wohlgemuth, *Assistant to Manager, Service Department, Apparatus Div.*, Westinghouse Electric Corp., East Pittsburgh, Pa.

Rotating electrical equipment, such as a motor, if applied properly and operated properly will last longer and require less maintenance if it is kept clean and adequately lubricated. The Maintenance Engineer should work out a plan with the Operating Departments for routine inspections and maintenance. In general, important drives should be inspected visually every month with a good general inspection once a year.

The speaker discussed several of the specific problems encountered in the upkeep of electric motors and presented a check list of the parts of motors that should be inspected.

● Harry C. Ballman, *Manager, Field Engineering Services*, Bituminous Coal Institute, Washington, D. C.

We can look forward to continuing air pollution efforts for cleaner air. Plants, in the past, have moved away from the restrictions imposed on them by metropolitan areas. Today this may not be done in those instances where the boundaries of control have expanded. Greater industrialization and larger population require more mass transportation, water supply, and labor; and these in turn are becoming more restrictive. In some instances we may be temporizing with air pollution problems and invoking other problems. Air pollution can be controlled once we adjust ourselves to accept the task. It is a challenge to all, including such personnel as management, maintenance, operating and supervising personnel.

The trends of air pollution control activities over the past ten years are:

1. Trend from local government with limited boundary restrictions to greater efforts to control air pollution at the county or district level.

2. Trend toward more research and investigation—developing better techniques and equipment.

3. Trend toward placing the responsibility for corrective measures on those responsible for the source.

4. Trend toward providing regulations to control all kinds of air pollution.

● Edward J. Cleary, *Executive Director and Chief Engineer*, Ohio River Valley Water Sanitation Commission, Cincinnati, O.

The maintenance engineer and supervisor are in a strategic position to promote water-pollution control. There are two solid reasons why maintenance personnel should be concerned. From a personal standpoint you owe it to yourself as a citizen to participate in safeguarding water resources that are vital to your health, happiness and job. Second, those responsible for maintaining utility services essential to production are faced with the disposal of waste. Water—pollution of streams is the result of improper waste disposal.

What you should be concerned about is determining where your company stands with regard to pollution-control measures. Make an appraisal and thus be in a position to inform top management of the situation and offer specific recommendations.

How you tackle the job is a matter that can be developed as a two-step procedure. **First,** promote development of a statement of company policy setting forth the attitude, administrative responsibility, and internal organization for pollution control. **Second,** determine the source and nature of wastes with a view toward minimizing or isolating them for special treatment; insist upon good housekeeping practices within your plant; and develop means for maintaining employee consciousness of water conservation and pollution abatement.

● **B. J. Drummond, *Plant Engineering Dept., Corporate Manufacturing Staff, Chrysler Co., Detroit, Mich.***

The increase in number of automated operations in the automotive, as well as other industries, has increased the necessity for greater coordination between all engineering activities in the planning stages and in the operation of the facility. For successful production at lowest costs, the emphasis must be on the maintenance cost of the operation from the very beginning.

Today we have not only the millwright, but electricians, pipefitters, welders, machine repairmen, job setters and toolmakers to build and maintain our machinery. Yet automation demands even additional skills. Training programs are the logical answer, to give technical knowledge of industrial electronics and hydraulics.

● **Wallace E. Fore, *Plant Engineer, Los Angeles Div., North American Aviation, Inc., Los Angeles, Calif.***

To get the maximum effectiveness from maintenance employees, it is necessary to provide them with proper leadership. The maintenance worker is in general a talented, capable, and willing worker, but a need exists to improve his effectiveness and work cooperation.

In any situation where maintenance workers are found to be in-

(Continued on page 34)

The Role of the Safety Engineer In an Automated Plant

In the address given by B. J. Drummond of the Plant Engineering Department of the Chrysler Co. at the Plant Maintenance & Engineering Conference, some revealing comments were made on the relation of safety to automation:

Safety in our automated plant deals with either regular or faulty behavior of the automated machine, controlled through an electronic or mechanical brain varying in degrees of complication, and usually protected by so-called fool proof interlocks. It is the job of the safety engineer to understand the operation of the machine well enough to anticipate close clearance or "pinch" points and prescribe guards and walkways to protect those working around the machine. It is also his job to anticipate the limitations of the intelligence of the machine and the alertness of those working around it, and provide allowances for such problems through safety procedures to eliminate the hazard.

For many years the safety activity has often been identified as an operation of the plant engineering department or even at times the production department. Recent management philosophy has adopted the premise that the prime consideration of the safety program is personnel, hence have transferred this responsibility directly to the personnel department. This move has then placed the safety operation in the unique position of recognition as an operation worthy of respect as a department function and with increased ability to solicit enforcement of safety by production management.

Maintenance and safety go hand in hand. A poorly maintained machine will often be distinguished by its erratic behavior.

A shop with a well planned maintenance activity will frequently be distinguished by a low frequency rate of industrial accidents.

The safety engineer in an automated plant has a very important job to do. His problem is not only a matter of the preservation of flesh and blood, although this is certainly the most important consideration, but to develop a safety program which will reduce lost time accidents and lower workmen's compensation costs. His job can earn a reputation not only for the plant involved, but for the company as a safe place to work and can keep the potential available work force high.

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to problems like these:

- **What is the right eye protective device for each hazard . . . when should it be worn . . . how can you select for best results and greater economy? (Did you know there are more than 45 different types of goggles, each one designed for a different hazard and use?)**
- **What are the safety and maintenance factors of specific paints . . . the importance of the Color Code and where to use red, green, white, orange and even purple . . . who specializes in such paints?**
- **What are the most economical types of materials handling equipment for you?**
- **What is the importance of a uniform code for safety signs and signals . . . where can you find materials which will fit a planned program?**
- **What are the essentials for hand soaps and cleansers to protect the skin . . . the types of protective creams to prevent skin rash?**
- **What are the various types of electrical equipment approved by the Underwriters' Laboratories for specific conditions of hazardous gases, vapors and dusts . . . who makes them?**
- **What are the vapor hazards of flammable liquids . . . what fire prevention containers and equipment will do exactly the right job?**
- **What is the range of protective clothing, such as 70 different types of protective gloves . . . the specific merits and uses of each one—which is the very best for you?**
- **What can you save in time, money and production by selecting the right ladder for an operation?**
- **When will awards and placques speed up production?**

These are just a few questions suggested by only a few pages of more than 600!

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With this self-contained DIRECTORY you can depend on its own vast fund of practical information for solving basic safety problems . . . meeting split-second critical emergencies . . . or for developing a comprehensive safety program precisely designed to meet your maximum safety requirements.

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The nation's leading experts in their respective fields have actively collaborated to produce Best's Safety-Maintenance Directory.

All controversial products or material are screened and, where necessary, checked with such authorities as: U. S. Bureau of Standards, U. S. Labor Dept., U. S. Bureau of Mines, U. S. Public Health Service, Underwriters' Laboratories, Factory Mutual Laboratories, American Standards Assn., and many other reliable testing organizations.

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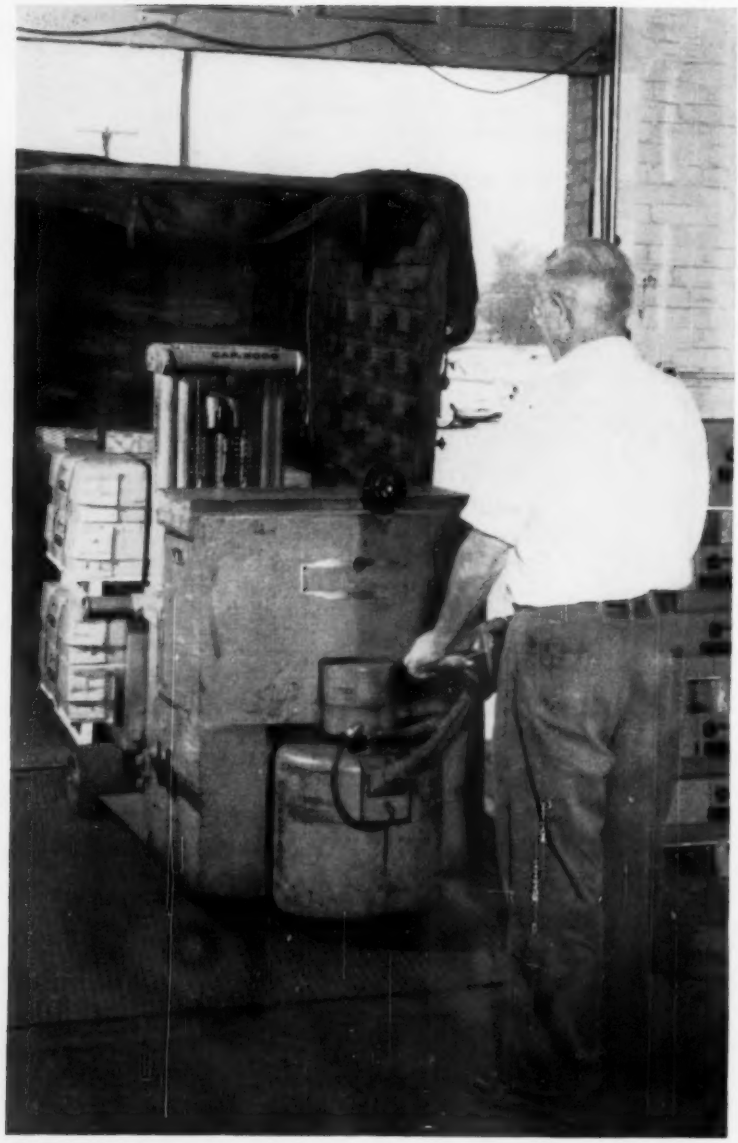

Outgoing carriers are loaded with needle rollers by stacker truck which can carry 3000 pounds and enter truck, thus eliminating manual handling.

The conversion from manual materials handling methods to industrial trucks and palletized loads in any plant is usually associated with the quest for more effective space utilization and/or faster shipping and production schedules. At The Torrington Company's Broad Street Plant in Torrington, Conn., however, it was for another reason. Increased sales appeal for the company's precision needle rollers was the goal.

All outgoing shipments to customers are now placed on disposable 26 by 32-inch pallets. The needle rollers are packed in metal cans, the cans packed in cardboard cartons (20 cans per carton), and the cartons strapped to pallets. The total weight of such a palletized load is around 1500 pounds.

According to W. J. St. Onge, Jr., Advertising Manager, here are the results:

"The materials handling problem in both our plant and the customers' was greatly simplified; there was a significant space saving at both places; and, by palletizing, the shipping containers arrive at their destination in much better shape than previously."

The Torrington Company's sales department saw that since needle rollers are purchased in bulk quantities, this new method would add sales appeal to their product. In addition, it allowed customers to stack shipments immediately adjacent to the assembly areas where they were to be used.

One of the first steps in the plan was the purchase of two electrically-powered industrial trucks. The trucks are called "walkies," as they

(Continued on page 30)

Cans of precision roller needles are packed in cardboard cartons. Latter are then strapped to pallet, three to pallet.

Efficient handling methods give a boost to safety, maintenance and sales.

Another stacker truck operates in the storeroom, carrying wire coils, other materials. It can be shifted to shipping room when needed.

Pallet loads are transported to a storage area by "walkie" truck. Operator high-stacks his load, thereby saving much costly space.

Truck-Pallet System

(from page 28)

are operated from a control handle while walking along with them. Both trucks are capable of stacking palletized loads to heights of 14 feet, saving costly storage space in the shipping department. Since each is only a maximum of 40 inches wide, they are able to maneuver in extremely tight places. Lifting and lowering as well as forward and reverse directions on the trucks are controlled from the handle.

One of the units is on duty in the shipping room during the complete 40-hour work week. The main job of this truck is loading the palletized goods into outgoing motor trucks. Because of its compact design and low head clearance it can enter directly into the truck and stack its load, thus eliminating manual handling.

The other truck operates primarily in the storehouse, transporting wire coils on its forks to the production areas. During busy periods, this unit can be transferred to the shipping room if necessary.

Under the previous system, The Torrington Co. packed its rollers in cartons, which were handled by two-wheel dollies. The company viewed this method as an outmoded one, especially since the great majority of customers had converted to industrial trucks within their plants. It was seen that shipping loads on pallets would mark Torrington's products as distinct among the various goods received at the plants, because they would be pre-palletized.

The pre-determined goals of easier customer handling and added sales appeal have been achieved by the new method. As a plus benefit, some 36 man hours per month were saved in the shipping department alone, says John S. Miller, Superintendent.

The keystone of the entire operation is the trucks, the company reports. Electrically-powered units were selected because of their long life, lack of maintenance problems and smooth operation, Mr. Miller points out.

Still another factor was that the company's maintenance department insists on electrics for in-plant duty, because of their odor-free and smokeless operation. Also, the electrics can be "refueled" right in the plant at a convenient battery recharging station. After each eight-hour shift, the batteries of the trucks are connected to the charger, and the trucks are ready for immediate operation the next morning. Costs of charging each truck for an eight-hour shift are estimated at only about $.60 by The Torrington Company.

But the big result for the sales department was that acceptance of Torrington needle rollers rose to a higher level than ever before. The company's customers definitely appreciate receiving pre-palletized loads. And, while the Sales Department was primarily interested in the solution of its own problem, at the same time it improved a portion of the in-plant handling methods—with time and money savings.

Pictures by courtesy of Lewis-Shepard Products, Inc.

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Achievements and Awards

The brewing industry chalked up a pair of impressive safety records for 1957, according to a special report on safety by the United States Brewers Foundation. Results of the Foundation's tenth annual "All Personnel" safety contest show disabling injuries in breweries were held to 14.7 per million man hours worked last year. This represents an injury reduction of more than 60 percent since the contest began in 1948.

A two-year old Fleet Safety Contest for delivery personnel aimed at combating accidents on the highway has produced a 12-percent decline in the accident frequency rate for the brewing industry.

More than a hundred breweries reported in the Foundation's "All Personnel" contest. Participating firms are grouped according to number of employees. The fewest number of injuries per man hour—10.9 per million—was recorded by brewing firms in the over 1000 employees category. Companies with less than 100 workers scored 14.2 injuries; those with less than 500 workers, 13.5; and, those with up to 1000 workers, 21.9.

Frequency of disabling injuries had reached 38.4 per million man hours in 1947. A comprehensive safety program, including training films, handbooks and technical advice, was inaugurated by the Foundation in 1948. The annual safety contest, a part of the program, has shown a substantial decline in injuries each year for the past ten years.

Sixty-six breweries have fleets of delivery and other vehicles registered in the current Fleet Safety Contest. Brewing is one of five major industries participating in the National Fleet Safety Contest cosponsored by the National Safety Council.

"The reduction of accident frequency rate of 12 percent over the previous year is a very encouraging factor for the brewing industry," a spokesman for the National Safety Council said. "It is three times better than the improvement shown for all fleets enrolled in the 1956–57 contest."

• • •

S & W Fine Foods, Inc., was honored recently for achieving an outstanding safety record in the warehouse operation of its Redwood City, California plant. The award was presented by S&W's insurance carrier, Industrial Indemnity Company, and recognized the completion of 750 consecutive days without a lost-time injury. Industrial Indemnity's Supervising Safety Engineer A. Melvin Anderson presented the award to S&W's warehouse foreman, George Heim, during a brief ceremony at the cannery.

• • •

Navy Secretary Thomas Gates and Board Chairman Herbert D. Vogel of the Tennessee Valley Authority received President Eisenhower's Safety Award for Federal Agencies from Presidential Assistant Sherman Adams in a recent White House ceremony.

Previously given to only one agency a year, the competition in 1956 was divided into classes for those agencies with more than 50,000 employees, and those with fewer than 50,000. The previous winner was the Air Force.

Adams told the recipients, "This award manifests the President's deep concern for a safe and healthy America. Safety, like many other things, begins 'at home,' and the

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Federal Government seeks to set an example by preventing injuries to its own employees."

The Navy, Adams said, not only reduced its already low injury frequency in 1956, but achieved a decline of 15 percent in the severity of injuries. TVA was cited for a 28 percent drop in its injury frequency rate, and a 60 percent reduction in severity.

Two of the three judges of the competition were present for the awards ceremony: General G. C. Stewart, executive vice president of the National Safety Council, and Dr. William N. Cox, Jr., Acting Director of the School of Industrial Engineering, Georgia Institute of Technology. Mr. Henry B. Duffus, president of the American Society of Safety Engineers, was not able to be present.

Competition rules, as adopted by the Federal Safety Council, are not based on a statistical decline in work injuries. They must also show encouraging progress in demonstrating management leadership, in assigning responsibility for safety programs, in maintaining safe working conditions, in establishing safety training and education, in reporting and analyzing accident records, and in organizing medical and first aid systems. In all, 22 Government Agencies were eligible to compete for these awards .

• • •

Thirty years of accident-free operations by the laboratory employees of the American Cyanamid Company's Linden, New Jersey plant drew praise and awards from national, state and local groups. In ceremonies held recently, Paul Tompkins, plant manager, accepted a string of awards and commendations on behalf of the lab employees. Included were commendations from the National Safety Council, the Manufacturing Chemists' Association, the New Jersey Safety Council and Cyanamid. Leon R. Becker, superintendent of safety and plant protection, served as chairman of the program.

On behalf of the National Safety Council, George G. Traver, executive secretary of the New Jersey Safety Council, saluted the employees and management, and presented to the group the Extraordinary Award of Merit from the New Jersey Safety Council. A Cyanamid Safety Certificate, for which the group also qualified because of its record, was presented by Mr. Tompkins to the plant technical director, Dominic Cestoni.

Leon R. Becker, superintendent of safety and plant protection in congratulating the group on its accomplishment, said, "Your day in and day out regard for the principles of safety have added up to a record in which you and Cyanamid can take great pride." He indicated that, "Your 30 year safety record is probably singular in the industry."

A part of the program was the presentation of appropriately engraved and personalized cigarette lighters to each of the members of the laboratory by director, Dominic Cestoni.

• • •

Monsanto Chemical Company's El Dorado, Ark., chemical plant established a new company plant safety record in 1957, and has been named winner among the larger plants of the company of all three safety award categories. The record, started more than 54 months ago, was 8,014,996 manhours worked without a major injury to the end of 1957. The previous company record of 5,393,400 manhours was held by the Nitro, W. Va., plant and ended in May, 1953.

Among the Group I plants (those which work more than 1,000,000 manhours a year) the El Dorado chemical plant was awarded the President's Trophy for the best safety record during the year; the Annual Improvement Award for the greatest percentage improvement over the last five years in accident frequency rate, and the company's Executive Committee Award. This latter award, given for the first time this year, has been established for the plant which has the best manhour record since the last major injury and which has operated during the year without a major injury in each of the groups.

Among the Group II plants (those which work between 200,000 and 1,000,000 manhours a year) the winner in all three categories was the El Dorado refinery. The refinery by the end of the year had run up a 30 month stretch without injury with a record of 2,048,452 manhours worked. The El Dorado research department which worked 424,193 manhours in four years, was declared the President's Trophy Award and Annual Improvement Award winner among the Group III plants (less than 200,000 manhours worked in a year). Group III winner of the Executive Committee Award was Pipeline, Ark., which in more than six years has worked 844,802 safe manhours.

Ceremonies for award of the President's Trophy by Charles Allen Thomas will be held later.

Monsanto's over-all frequency rate during 1957 was 1.41, which compares well with the latest similar rate for the entire chemical industry of 3.38 reported by the National Safety Council.

Electrical Safety In Chemical Plants

There is a real need to evolve realistic and modern standards for the application of fundamentally safe instrumentation to chemical plants and processes, a Du Pont engineer said at a safety session during the Winter General Meeting of the American Institute of Electrical Engineers.

E. J. Meyers, in a paper, "Electrical Safety in the Chemical Industry," told his fellow engineers that "Electrical safety cannot be overemphasized in modern chemical industry. Increased mechanization, instrumentation, and costs, complex manufacturing operations, and use of highly flammable materials, combine to require special attention in the use of electricity.

One of the most important facets of electrical safety is proper grounding of equipment, he emphasized, while the generation and control of static electricity is another important item that needs adequate coverage and standardization.

"Another form of electrical energy that can and should be guarded against is lightning," he warned. "Grounding and lightning protection standards are particu-

larly needed for chemical operations where many hazardous materials are stored, handled and processed in large quantities. The Code for Protection Against Lightning, dated May, 1957, by the National Fire Protection Association should be used as the basis for a company standard."

He added that more attention should be given to establishing "no hot-work rules and regulations" throughout chemical operations and plants.

Waterfront Safety Code in Preparation

A New York State worker-safety code to protect waterfront workers from on-the-job injuries is currently being prepared by the Board of Standards and Appeals, William S. Maxwell, chairman, announced recently.

"Stevedoring had the highest injury frequency rate of any industry according to recent reports," Mr. Maxwell said. "This record of high accident rates and recent on-the-scene examinations of loading and unloading procedures at New York City piers by staff engineers point up the urgent need for an industrial code to protect shore-front workers."

Union-employer contracts currently in effect usually contain provisions for a worker-safety committee. However, according to some union officials, these committees either do not exist or have not produced effective results.

Mr. Maxwell said that safety engineers of his staff are now making an intensive study of waterfront work conditions in New York City and upstate ports. Their reports, plus several waterfront safety codes now in effect in other States, will be studied as the basis for a tentative draft of the projected code. This draft will be submitted to an advisory committee—representing affected labor, industry, government and the general public—for study and recommendation. The recommended code will then be submitted to the Industrial Commissioner for review.

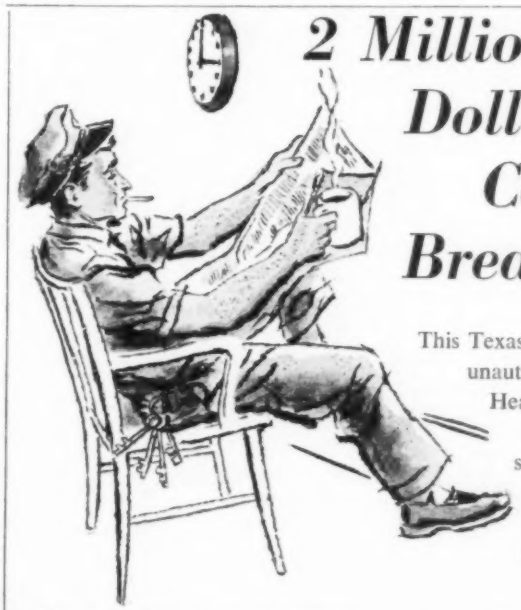
The projected regulations would only cover work done by workers shore-side. Federal regulations now cover ship-side work.

New Safe Driving System Announced

Ford Division of Ford Motor Company announced a nation-wide, public-service program designed to assist trucking companies cut their accident costs by helping thousands of truck drivers to upgrade their driving skills. The program, which is based on a pioneer approach to safe driving, was tried on an experimental basis during the last six months of 1957.

The one-week, on-the-road course is taught personally by Harold L. Smith of the Institute of Driver Behavior and originator of the "Smith System for Safe Driving." Basically, the pioneer system helps drivers form new "seeing habits as a means of spotting a hazardous situation before it becomes too late to do anything about

(Continued on page 55)



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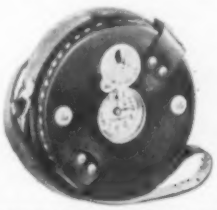

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effective, that ineffectiveness is the result of:

1. Inertia on the part of the supervisor in passing on instructions to the worker.

2. Failure on the part of the supervisor to overcome the momentum which normally exists in a maintenance group. "Momentum" here refers to resistance to change in either speed or direction.

3. A lack of promptness on the part of the supervisor in responding to the needs of his workers or to the requirements of his superiors.

4. A failure on the part of the supervisor to follow-up on assignments, taking corrective or instructive action as required.

Sanitation Objectives

● John A. Eckstein, *Special Projects Engineer*, Oscar Mayer & Co., Madison, Wis.

What interest should the maintenance engineer have in plant sanitation? To date only a few companies have responded to the challenge presented by plant sanitation. The reasons are that management has failed to recognize the sanitation problem and that those engaged in the problem have been inadequate in helping themselves.

The plant maintenance department should initiate a study to determine if significant reductions can be made in the costs of the sanitation department.

● William A. Gerstmyer, *Supervisor, Sanitation & Accident Prevention*, American Sugar Refining Co., Baltimore, Md.

Our sanitation program is patterned after an efficient mechanical maintenance system and includes regular scheduled cleaning operations, inspections and area ratings, cleaning and maintenance of equipment. With this program it is possible to maintain the entire plant up to predetermined standard sanitation levels at all times.

The program utilizes trained personnel who employ standard cleaning methods and use standard equipment and supplies. Basically, it is an eight point program covering: Sanitation Organization; Work Loads, Frequencies and Schedules; Training & Standard Cleaning Methods; Budgets & Standard Costs; Personnel Participation; Inspections & Ratings; Engineering & Maintenance; Standard Equipment & Supplies.

Maintenance in Small Plants
(Up to 50 Maintenance Employees)

● Svante Eikrem, *Plant Engineer*, Hyster Co., Portland, Ore.

Three major changes in 1951 made it possible and also necessary to put our maintenance program in effect: expansion of building and manufacturing equipment, completion of a long-range electrical program with changeover to 440 volts, and the appointment of a full-time maintenance supervisor and an increase in maintenance personnel.

The maintenance schedule emphasizes preventive maintenance. It outlines periods of maintenance (daily, weekly, monthly, yearly) together with the work to be performed. Other arrangements than the Plant Maintenance Schedule are necessary:

1. Numbering of equipment and machinery for identification.

2. Record cards for each piece of equipment.

3. Recording of maintenance frequencies, cost, etc.

4. Filing of cards in separate groups such as production equipment, electric motors, lubrication lists, air tools, cranes and hoists, etc.

5. Maintenance Request and Report Forms sent to the Maintenance Supervisor from various departments.

6. Daily work orders made up from the request forms and the maintenance schedule.

7. In emergency repairs, priority is given to safety hazards and key machine breakdowns.

8. Analysis of repair costs for major pieces of equipment.

● Homer A. Smith, *Plant Engineer*, Diamond Alkali Co., Newark, N. J.

A basic work order system can be the beginning of an entire cost control study. Work orders should be required on all jobs except routine ones done by department mechanics.

Each maintenance job should be carefully planned. Small plants usually divide this function between the maintenance supervisors who will take time during plant tours to check job sites, discuss and analyze the problem. Individual mechanics are then assigned to the jobs. In a small plant, the stock room clerk may handle much of the paper work in connection with the orders. When the work order is completed, the stock clerk prices up the order within the limits of his price book. The supervisor then gets the completed order and checks out the job.

The maintenance engineer passes the completed work order to the plant engineer and a clerk records the cost for each department. The order then goes to the production supervisor to alert him to maintenance costs in his department. Finally, the work order is returned to the plant engineering office for filing.

● James M. Weeks, *Plant Engineer, Proto Tool Div.*, Pendleton Tool Industries, Inc., Los Angeles, Calif.

Our paper-work system which is the backbone of all our maintenance operations consists of three basic forms (all the same size, half a letter-size sheet, but in different colors for easy identification):

Request for Maintenance Work: When this triplicate form is received at Plant Engineering, the job is estimated and scheduled, the foreman is assigned, and the form becomes a Work Order. The Original copy is placed on the Work Order Board under the name of the foreman supervising the job. One copy is filed in the "In Process" file and the third copy goes to the department requesting the work.

Maintenance Job Time Card: When the Work Order is entered in the "In Process" file, the clerk also fills out and files with it a job time card.

Maintenance Material Requisition: These cards are for the requisition of materials and supplies. The cards are filed in the "In Process" file.

● C. H. Pedersen, *Project Engineer*, Superior Tube Co., Norristown, Pa.

Our Engineering Department handles all Engineering, including maintenance, design, layout, tool engineering, purchase and installation of new equipment, renovation

(Continued on page 58)

industrial hygiene

Health Conference At Atlantic City

How to keep workers healthy and on the job through control of hazardous exposures in the working environment and provision of preventive medical services in industry will be the subject of a national Industrial Health Conference, to be held in Atlantic City, New Jersey, April 19–25, 1958. The Conference, an annual meeting, brings together physicians, nurses, engineers, chemists, toxicologists, and other specialists to discuss recent developments, problems, and progress in worker health.

Expected to attend the Conference are over 3,000 members of the five participating organizations, the Industrial Medical Association, The American Association of Industrial Dentists, the American Industrial Hygiene Association, the American Association of Industrial Nurses, and the American Conference of Governmental Industrial Hygienists, as well as representatives of industrial management, labor, and others concerned with health in industry.

Concurrently the Nineteenth Annual Meeting of the American Industrial Hygiene Association will be held in Atlantic City, April 21–26, 1958. Over one hundred technical papers will be presented on topics from the fields of radiation, air pollution, noise, toxicology, engineering control of hazards, and analytical chemistry. Headquarters for the AIHA activities will be the Claridge Hotel. Registration will commence Sunday, April 20, at the Claridge Hotel and at Haddon Hall. Beginning Monday, April 26, registration will continue at the Convention Hall. Advance registration may be obtained by mailing $3.00 to the Industrial Health Conference Registration, Room 1300, 28 E. Jackson Blvd., Chicago 4, Illinois.

Developments In Industrial Nursing

The Medical Center of the University of Oklahoma held its Fourth Annual Industrial Nursing Workshop. In view of the unusually interesting nature of the topics discussed and papers read at the Workshop, the University has made available a verbatim copy of the proceedings.

Under the title "Contemporary Developments in Occupational Health Nursing," this 116-page publication offers abstracts, as well as complete transcripts of the round-table discussions and papers heard at the Workshop. The many facets of industrial nursing, from nurse-patient relationship to the ways and means of industrial group insurance are probed and explained by experts in their respective fields.

Of vital interest to nurses in all branches of industry, the report deals with problems such as The Alcoholic and Alcoholics Anonymous in Industry, The Psychology of Work, Psychiatry in Nurse-Patient Relationships, The Challenge of the Accident Repeater, and Recent Changes in Social Security Legislation of Interest to the Nurse in Industry. There are also panels on Self-Improvement (with beauty, grooming, public speaking and professional relations experts), Fatigue, Morale, Emotional Problems of the Worker, Industrial Hygiene, etc.

For a copy of this highly informative publication please make check, in the amount of $2.00, payable to the Industrial Nursing Trust Fund, and address request to Industrial Nursing Workshop, Dept. of Preventive Medicine and Public Health, University of Oklahoma Medical Center, 801 N.E. 13th Street, Oklahoma City 4, Okla.

Cincinnati Awarded Noise Abatement Plaque

The City of Cincinnati, Ohio, was honored in New York recently with the official presentation of the bronze Achievement Award Plaque of the National Noise Abatement Council for its efforts in reducing needless, extraneous noise and for adopting a noise abatement ordinance in 1957. The presentation was made by L. J. Buttolph, Executive Secretary of the Council, at Council headquarters, to Charles N. Howison, Executive Secretary, Air Pollution Control League of Greater Cincinnati, which spearheads the noise abatement program in that city. Mr. Howison will make a personal presentation to Mayor Donald Clancy in the near future. In addition to Cincinnati, Memphis, Philadelphia and Jacksonville, Fla., were previously cited for their organized efforts against noise during 1957.

(Continued on page 43)

radiation standard instrument

For Intercomparison of National Primary Standards

The National Bureau of Standards has constructed a portable transfer instrument for measurement of radiation exposure dose, as agreed upon at the 1956 meeting of the International Commission on Radiological Units and Measurements (ICRU).[1] Consisting of a small cavity chamber and auxiliary apparatus, the equipment will be available to other countries as an intermediary by which their own primary free-air standards can be compared with that of the United States.[2] It can also be used to measure the gamma radiation from a radioactive source, which could then function as a temporary primary standard, allowance being made for its rate of decay. A set of equipment similar to that prepared for the ICRU has also been constructed for the United Nations Educational, Scientific, and Cultural Organization (UNESCO).

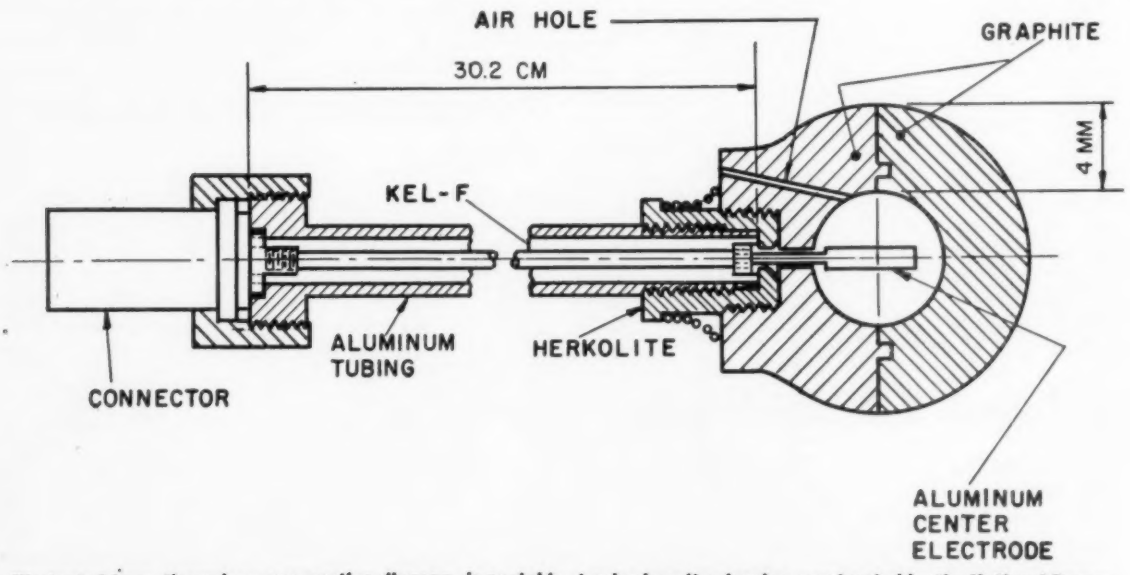
Although it is possible to compare the national primary standards with one another directly, this involves a great expenditure of time and effort and is therefore attempted only at infrequent intervals. The purpose of the present portable instrument is to make such comparisons possible on a more frequent basis while maintaining a reasonable level of accuracy.

Use of the transfer instrument is expected to bring about greater uniformity in radiation measurements, so that results obtained in different countries can be more easily and reliably compared. The direct benefits of this should be felt by those engaged in the many activities in which radiation now plays an important part; for example, in the control of therapeutic radiation in hospitals, in fundamental physical studies of radiation, in the applications of radiation to industrial processes, and, of course, in the manufacture of radiation meters.

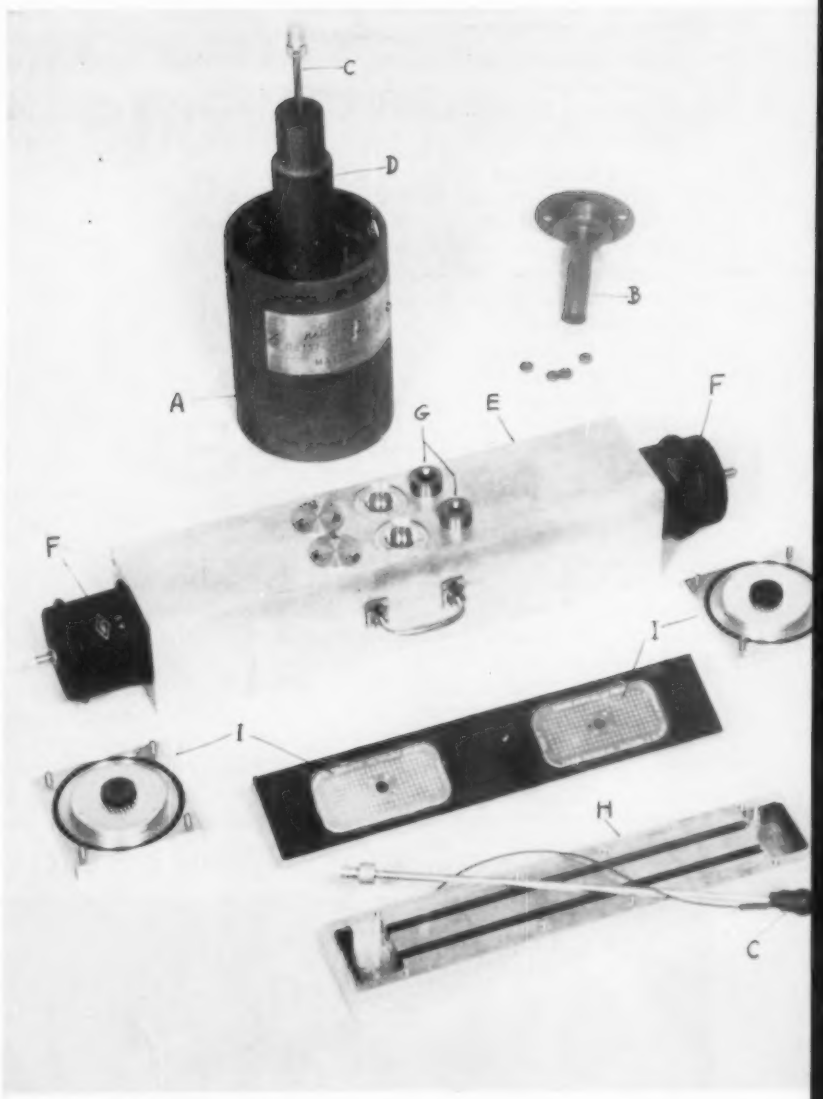
At the 1956 meeting of the ICRU, the Bureau agreed to construct and calibrate a small cavity chamber, a diaphragm for defining accurately the size of the radiation beam, and a charge-compensating capacitor. Since then, it has seemed desirable to increase the number of components. The present kit consists of 2 cavity chambers (in case one develops an electrical leak); a pair of diaphragms with nominal aperture diameters of 1 cm and 0.7 cm; a pair of capacitors, nominally 100 and 1,000 micromicrofarads; and a

1 See pp. 37 and 38 of Report of the International Commission on Radiological Units and Measurements (ICRU) 1956, published as National Bureau of Standards Handbook 62, available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., price 40 cents. See also Meetings on radiation units and protection, NBS Tech. News Bul. 40, 102 (July 1956).

2 Inquiries concerning use of the transfer standard should be addressed to Dr. H. O. Wyckoff, Radiation Physics Laboratory, National Bureau of Standards, Washington 25, D. C.



Illustrated here, through a cross-section diagram, is portable standard cavity chamber constructed by the National Bureau of Standards. It will serve in an intercomparison of national primary (free-air) standards of radiation exposure dose.



Portable standard instrument and accessories for measuring radiation dose, constructed by National Bureau of Standards. A—Container of cesium—137 source with plug; B—removed and cavity chamber; C—inserted. The hemi-cylinders, D, serve to center the stem of the chamber. Container, E, holds two capacitators, F, and two diaphragms, G. The two cavity chambers are held in container H. Silica gel canisters, I, reduce humidity in E and H. Cover for A (not shown) contains length of coaxial cable for connecting C to an electrometer.

cesium-137 radioactive source for checking the constancy of the chambers' sensitivity.

The cavity chambers have been calibrated for radiation in the range from 60 to 250 kev as well as for gamma radiation from cobalt-60 (a mixture of 1.17 and 1.33 Mev rays). The performance of the instruments is stable to a few tenths of a percent.

Exposure Dose

When gamma-or X-ray photons pass through a material medium, many of them are absorbed and their energy used to eject electrons from atoms of the material. In a gas, the ejected electrons produce ions as they collide with the gas molecules and knock other electrons out of them. The number of ions produced per unit of mass of a particular gas depends on the speed (i.e. the energy) of the original electrons; and this in turn depends on the energy of the radiation. If the gas is electrically neutral to begin with, the total charge on the negative ions is equal to the total charge on the positive ions.

This ability of radiation to produce ionization is used in the determination of "exposure dose," which is a measure of the radiation reaching a given point (i.e., small region), based on the amount of ionization that the electrons originating at the point could produce in air. The unit of exposure dose is the roentgen. The exposure dose at a point is 1 roentgen when the electrons originating per 0.001293 grams of air (the mass contained in 1 cm^3 at standard temperature and pressure) can produce negative (or positive) ions of 1 esu total charge.

The primary standard of exposure dose, as maintained at the National Bureau of Standards and other national laboratories, is a "free-air" ionization chamber. In this instrument (omitting refinements of technique),

the beam of rays to be measured is allowed to ionize the air between 2 parallel metal plates; and an electrical field between the plates attracts the ions to the plates as fast as they are formed. Then, by measuring the charge on the ions thus collected, the exposure dose in roentgens can be calculated.

The transfer instrument operates on the same basic principle as the free-air chamber. There is a small chamber of about 1 cm^3 in volume containing air, from which the ions produced by radiation are collected and measured. The wall of the air cavity is made of carbon (graphite) and is 4 mm thick to produce electronic equilibrium for cobalt-60 rays. That is, the wall is just thick enough to keep out electrons ejected by the high-energy cobalt rays from air particles outside the instrument or from such things as the lead-collimating slits that channel the rays into a narrow beam; any greater thickness would absorb too much of the radiation itself before it reached the cavity and would thus reduce the instrument's sensitivity.

Projecting into the cavity is an aluminum center electrode, and the ions are collected by applying an electrical potential between this electrode and the carbon wall. A special effort was made to assure good electrical insulation between the high- and low-voltage parts of the circuit. This is necessary since even very small leakage currents (which the instrument cannot distinguish from the flow of ions) would produce spurious readings. As an additional precaution against errors of this kind, a short length of coaxial cable and a connector are provided for connecting the chamber to the electrometer that would be used to measure the charge of the ions.

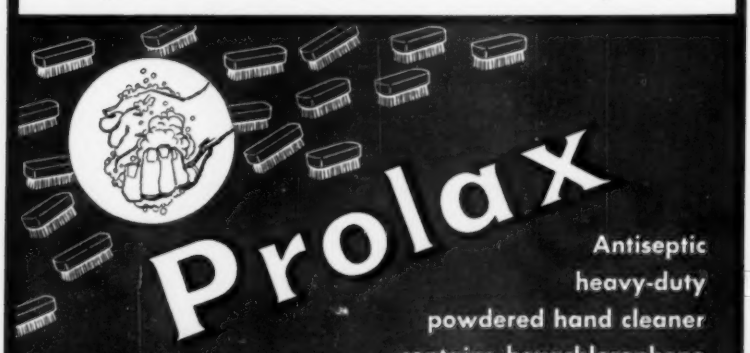
The sensitivity of the instrument can be checked by removing the lead plug from the cesium-137 source that is part of the kit and inserting the chamber into the holder. To insure reproducibility of measurements, the components are so designed that the chamber can always be put into the same position relative to the cesium source.

Past experience in the direct comparison of free-air chambers has shown that sufficient attention has not always been given to the accurate determination of the characteristics of diaphragms and capacitors. The cross-sectional area of the diaphragm opening determines the volume of air that is irradiated; hence any inaccuracy in the value of the cross-sectional area would be immediately reflected in the ionization measurement. The areas of the openings in the diaphragms supplied with the transfer instrument have been measured to an accuracy of better than one-tenth of 1 percent.

The capacitor also plays a critical part in the ionization measurement, since the charge of the ions is determined by balancing it against a charge placed on the capacitor. In calculating the latter charge, the capacitance of the capacitor must be known. The problem here is to eliminate the effects of variable stray capacitance. This is done by enclosing the capacitor in a metal shield so that the stray capaci-

(Continued on page 42)

Soap and brush action without any brush



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DERMATITIS SOLUTIONS — can be surprisingly simple

by J. S. T. SWANSON
Safety Engineer
Orenda Engines, Ltd.
Toronto, Canada

**Get the facts behind every dermatitis condition.
Keep looking for the "Why" when dermatitis persists.
The real causes and their solutions may be surprisingly simple.**

The most effective single item in our plant's safety program has been the control of industrial dermatitis. Some of the aspects of the situation are a little unusual and it therefore may be helpful if I briefly outline some of the background for our safety experience.

The safety program for our jet-engine plant was started in its present form with a full-time safety staff late in 1952. Our accident frequency at that time was 25 percent better than the average for our type of operation in Ontario. We have a slightly different interpretation of what constitutes a lost-time accident and this modifies our frequency figure somewhat.

Our frequency has now fallen until it is 70 percent below the Ontario average. One important factor in this improvement has been a program to deal with skin diseases before they happen.

In October 1952, before any useful statistics had been collected, a chance remark drew my attention to the dermatitis problem other companies were experiencing. I asked our chief medical officer if we were having a similar problem and he told me it was almost unknown, but we agreed to wait and see whether it would become significant later. We had just moved into a new plant and had not been operating long and were building up our labor force.

Sure enough, in early 1953, the skin-disease problem began to assume proportions which indicated that something had to be done. I can't say whether this had any bearing on the problem but articles appeared in various publications at that time giving comparatively non-technical descriptions of industrial dermatitis. It seemed that no sooner were these read by the general public than the cases started to roll in. Investigation showed the sources to be somewhat diversified. They ranged from exposure to lubricating oils like those we use in our cars, paints and solvents, and cleaning solvents, to cases of people who were allergic to a single type of metal. Each case, of course, was investigated by our medical department and many were referred to skin specialists.

A review of the cases showed that there were two basic types: The first was the type where one man of a group was affected by the offending material, while the remainder of the group was completely unaffected. The other type was that in which dermatitis affected more than one person in a group, usually to varying degrees.

In the first type it appears that a single person had an individual susceptibility. It is comparatively simple to transfer one man away from an offending material. This was done in that case with success.

In the other type where a significant proportion of a group was affected, it soon became apparent that it was useless to transfer sufferers out of the area. A part of their replacements soon became sufferers too! The only thing to do was to determine what could be done to prevent the dermatitis. We soon learned that maintenance of an unusually high level of personal cleanliness was a prime requisite. The standards of housekeeping in the affected areas already were high and presented little or no problem.

Protective Equipment

Our medical department instructed sufferers to avoid wearing clothing soiled by offending materials and to wash frequently while at work to prevent accumulation of irritating materials on hands and arms. Protective clothing and equipment were provided where required to protect the clothing and the sufferers. A considerable improvement soon was noted.

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Cases of dermatitis on the body and legs became less frequent.

There were a few complaints that two or three clean pairs of work pants each week was a laundry problem for their wives, but these were countered by the question: "Why aren't you wearing protective equipment provided, which would keep personal clothing clean and save them from domestic problems?"

In spite of the general improvement we observed, the rate of improvement where hands and arms were involved was not so high. A few questions brought out that the prescribed hand and arm washing was not being performed frequently enough. Further questions revealed a feeling on the part of the victims that this washing would—and here I quote—"take too much time."

On checking with supervision we found that they were wholeheartedly behind the plan and had instructed the men repeatedly to wash frequently. As the workmen all were paid on a straight-time basis and not by piecework, their excuse was puzzling. We were prepared to allow the time required for washing; the victims were not so willing, and told us it was our time they wanted to save! It took a few days to find out what was behind this phenomenon, but the solution was simple when we found it.

Our main plant has a large open manufacturing area and comparatively few but large washrooms are provided on specially constructed mezzanines. The workers objected more to the long walk and the climb up and down stairs than they did to their skin irritation.

This may not sound like a convincing reason, but remembering that logic is not one of the strongest factors controlling our actions, we accepted it at least until a better explanation could be found. An experiment was tried in one department using special dispensers filled with a hand-cleansing cream. All that was required was to walk a few feet, rub some cream on the hands and arms and wipe it off with a paper towel from the supply provided. The cream had no curative properties, nor were any claimed for it. It was strictly a skin cleanser, a substitute for soap and water, which could be located close to the working area without the cost of installing some comparatively expensive plumbing. But in a short time we found that no new dermatitis cases were appearing in that department!

A sharp drop in the incidence of dermatitis soon was noticed in the experimental area, and the dispenser setup was expanded to other affected departments and to departments thought to be vulnerable.

The improvement was so startling we could scarcely believe it, but the decline in industrial dermatitis cases has continued so that this year not a single serious case has occurred.

This coverage of a limited segment of the safety field of an industrial plant may be of only limited help to others. But it indicates the need to look further than the physical elements of a problem, whatever it may be. Application of this technique of seeking the pschological facts behind a problem has proved rewarding in other aspects of my job.

From an address presented at the 44th National Safety Congress.

The Medical Department Looks at Safety

What can the industrial medical department do for your safety program?

by **C. U. DERNEHL**
Assistant Medical Director
Union Carbide Corp.

It is fitting that the role of the medical department be considered in the organization of an effective safety program. All the mechanics of a safety program may be worked out in the most minute detail, but in the final analysis the mental responses of the employee in thinking safely or unsafely and consequently working safely or unsafely are the determining factors in the success of a program. We must never forget the concept that safety deals primarily with people and their attitudes and responses. In a very large degree the medical department also deals with the problems of people and their physical and emotional responses to these problems.

There are many accepted and clearly demonstrable ways in which a medical department plays a role in safety. Take, for example, the basic concept of the preplacement physical examination which attempts to determine if a prospective employee is physically and emotionally capable of performing a job safely and efficiently. The elimination of those with defective vision from jobs such as truck driving or from certain other activities requiring accurate vision will obviously result in less accident potential. Less obvious perhaps is the benefit derived from proper placement of those with weak backs or other not easily detected physical weaknesses.

While we may perhaps question the status of many back injuries as accidents, and thus their inclusion in the safety record, the very practical fact remains that whether they show as a safety statistic or not, we pay compensation claims on many of these cases. **A man physically matched to his job requirements is generally apt to have a safer work record.**

The value of periodic health inventories in maintaining a healthy and safe working force deserves comment. There is obviously a need for periodic health appraisals of the crane operator, the railroad engineer, the airline pilot and the operator of various forms of heavy equipment to mention just a few. Less obvious, however, is the hazardous situation which might exist if a supervisor or foreman were to become suddenly incapacitated from some physical

ailment at the time of a critical emergency. Detection of such an ailment during the course of a periodic health examination might have resulted in corrective measures which would lessen the chance of collapse in a time of stress and danger. Perhaps a reassignment of work duties would have retained the skills and experience of the man, but would have provided for another less vulnerable person to be available to meet the emergency. There are of course many other situations with safety implications which might be cited.

Particularly interesting is the apparent relationship between the neurotic personality and a high accident rate in such a person. Interestingly it seems that these persons seldom have severe mutilating injuries and in my experience the lost-time accident rate in these persons is low. However, it must be pointed out that experience has clearly demonstrated that repeated minor accidents increase the potential for a lost-time accident, and that, sooner or later, one of these accident repeaters will sustain a serious injury. It is difficult to detect the accident prone person during a physical examination. When accident proneness is suspected it is even more difficult to find convincing evidence for rejection for employment. The medical department can, however, make a valuable contribution in these cases by maintaining records which detect the accident prone person and by advising the safety division of this fact. This makes it possible for safety personnel to pay particular attention to the individual in question before a serious accident occurs.

Safety Education

The medical department has an unusual opportunity to engage in safety education. Injured personnel are often aware of infractions of basic safety rules which resulted in an accident whether it be major or minor. Skillful and sympathetic discussion of the events leading to an accident may cause the injured person to develop safe working attitudes for himself in an unforgettable way. Others who may be within range of the conversation frequently benefit from such discussions. Gentle chiding from a sympathetic nurse is often of value in preventing subsequent injuries resulting from carelessness or poor work habits.

In a more direct manner the personnel of the medical department engage in safety education through participation in first aid training and through talks to groups of plant workers regarding job hazards and the need for conscientious use of protective equipment. Many of these activities are in cooperation with and supplementary to the program of the safety department.

We have heard much in recent years about the importance of "the whole man" in the practice of medicine. Perhaps we should give serious thought to this concept in safety practice also. You will all recognize the inherent truth of the idea that a man carries all of his troubles, worries and illnesses through the gate and to his workbench each day. Similarly he carries home at night his rancors and job dissatisfactions if they exist. It takes little imagination to see the added accident potential in an employee whose mind is concerned with home problems, financial worries or personal and family illness rather than with the job at hand. It is here that we believe a medical department makes a significant and freqently unrecognized contribution to plant safety.

In any well accepted medical program, advisory services become a vital part of the professional activity. I recall rather vividly the case of a welder who sustained frequent small injuries and ultimately came to my attention for a stress initiated illness. He was given the opportunity to unload his problems on a sympathetic listener. This was gratefully accepted by the patient and the discussions which followed must have had some beneficial effect because his accidents became infrequent and we saw him only occasionally in the next several years. After several minor injuries in a period of a few weeks he was referred to me by the nurse, and it was discovered that once more a new source of worry was causing him trouble. Again the opportunity to "ventilate" was all that was needed to meet his problem and his accidents no longer occurred.

How often this same pattern is repeated in single and less dramatic fashion we have no way of knowing. Nor can we guess the number of accidents which may have been prevented by affording the opportunity to discuss problems before accident proneness became evident.

In a like manner, reassurance regarding personal health is of benefit in easing the worry of employees. This may be accomplished at the time of a periodic health inventory examination or by special request on the part of the employee. Advice on health problems in the employee's family may allay fears and worries which lead to inattention on the job and poor and unsafe work performance.

Finally, the medical department plays an important part in the detection of environmental conditions which may be unsafe in a subtle fashion. Among these might be lighting, ventilation, heat and humidity, noise and subclinical manifestations of occupationally induced illness.

It is evident that there is a great overlap of interest in safety of the medical and safety departments. This is as it should be since each in its own sphere is primarily concerned with the health and well-being of the worker. Through cooperative effort, we can do a better job.

From an address presented at the Semi-Annual Meeting of the Manufacturing Chemists' Association, Inc. Picture by courtesy of General Electric Co.

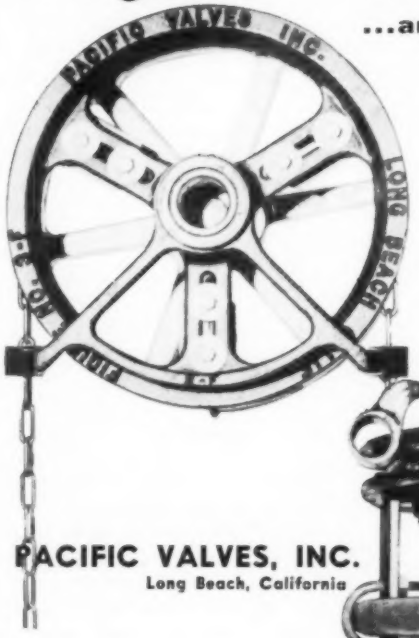
Radiation Standard Instrument

(from page 38)

tance becomes fixed and is no longer affected by conducting objects in the vicinity of the instrument.

The transfer instrument differs from the primary free-air standard in that the ions collected from the air are partly due to electrons ejected from carbon atoms in the cavity wall. As a result, the relationship between the ionization charge and the exposure dose is less direct than in the primary standard. However, for the purposes of a transfer instrument it is only required that the readings be stable and reproducible; and the present instrument has been designed to fulfill these conditions. This being the case, it is possible to compare the primary standards with one another by noting how each compares in turn with the transfer instrument.

everyone is concerned with SAFETY



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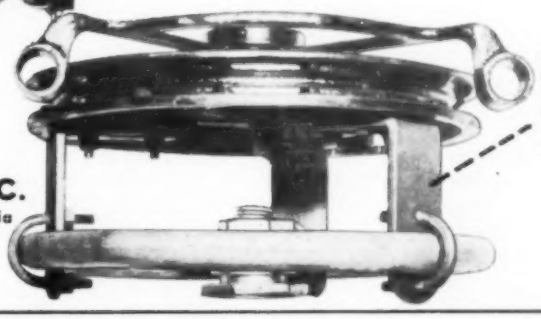


Heavy brackets bolted securely to handwheel facilitates adequate wrench clearance between handwheel and chainwheel

PACIFIC VALVES, INC.
Long Beach, California

(For details, use Key # O-15 on card on page 1)

Cincinnati Awarded Noise Abatement Plaque

(from page 35)

The National Noise Abatement Council, formed in 1941, not only makes awards to cities, but also honors industries, research and educational organizations, and individuals for notable accomplishments in the field of noise control. According to Dr. Buttolph, the current award was based on evidence provided by Cincinnati and the Air Polution Control League of Greater Cincinnati, showing what has been done and is being done there to enlist the cooperation of the residents in noise control activities. This evidence included reports on local meetings, committee promotion, cooperation of radio, television and press, pamphlets and booklets, etc. In making the award, Dr. Buttolph pointed out that it does not mean that Cincinnati is a quiet city. It does mean that there are many residents in Cincinnati who are willing to cooperate in making the city quieter.

In replying to Dr. Buttolph, Mr. Howison congratulated all the supporters of the Cincinnati program, and gave credit to the Cincinnati Police Department in working with the APCL and its citizen organizations.

Acetylene Safety Data Sheet

Publication of a revised safety data sheet on acetylene (SD-7) has been announced by the Manufacturing Chemists' Association, Inc. The 11-page booklet is part of a continuing MCA series of safety data sheets. It has been updated from the original 1947 publication and includes a recommended label for cylinders containing acetylene.

Presented also are sections on properties, hazards, engineering control, employee safety, fire fighting, handling and storage, tank equipment cleaning and repairs, medical management and first aid.

Copies of Chemical Safety Data Sheet SD-7, Acetylene, may be obtained at 30 cents each from the Manufacturing Chemists' Association, Inc., 1625 Eye Street, Northwest, Washington 6, D. C.

Benzyl Chloride Data Available From MCA

Publication of a new safety data sheet (SD-69) on benzyl chloride was announced by the Manufacturing Chemists' Association. The 16-page booklet contains updated information on properties, hazards, control, employee safety, fire fighting, handling and storage, cleaning and repair, waste disposal, medical management and first aid.

Copies of Chemical Safety Data Sheet SD-69, Benzyl Chloride, are available at 30 cents each from the Manufacturing Chemists' Association, Inc., 1625 Eye St., N.W., Washington 6. D. C.

American Standards Assn. Re-Elects Hallowell

H. Thomas Hallowell, Jr., president of the Standard Pressed Steel Company, Jenkintown, Pa., has been re-elected president of the American Standards Association for his third consecutive term, the association recently announced.

John R. Townsend, special assistant, Office of Assistant Secretary of Defense (Research and Engineering), was elected vice president. He succeeds Van H. Leichliter, president, American Wire and Steel Division, U. S. Steel Corporation. Mr. Townsend was a former director of Materials and Standards Engineering for Bell Telephone Laboratories and for Sandia Corporation.

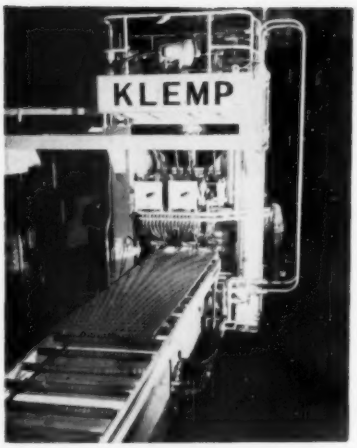
The American Standards Association is the national clearinghouse and coordinating body for voluntary engineering, industrial and consumer standards. It is a federation of 116 of the nation's leading trade associations, technical societies and public interest organizations, with 2200 company members.

Automatic Grate Welder

The world's newest and most modern automatic welding machine for metal grating, which took more than one year to build, was unveiled in Chicago recently by the Klemp Metal Grating Corporation.

An invitation has been extended by the Klemp Corporation to engineers, architects and men of industry to inspect the new unprecedented machine anytime they are in Chicago.

"While expanding our present Chicago plant, we looked for a new welder which incorporated all the features which we felt were desirable for the manufacturing of quality grating," stated Gerald T. Hughart, General Manager. "Because all these features were not available at the time in any standard production machine, we had to design our own machine—the only one of its type in existence," he added. "We basically started with a Verson gib guided 125 ton heavy duty special circuit hydraulically



operated press, to insure uniform heating and forging. This machine is also supplied with four National resistance welding transformers totalling 1200 KVA, together with 8 point tap switch heat regulators for the controllability of the heat in welding our product."

"After these two basic units were purchased, we then designed and built the balance of this machine (including the controls and a specially designed indexing unit hydraulically operated to give us a positive spacing of cross bars,) in our own plant," Mr. Hughart said. "This gave us the necessary equipment for a machine ideal for the grating which Klemp fabricates," he added.

Literature describing specification of welded grating manufactured by this new equipment is available by writing to: Klemp Metal Grating Corporation, 6601 South Melvina Avenue, Chicago 38, Illinois.

Florida U. Announces Safety Conference

Dates for the Fifth Annual Conference on Accident Prevention Engineering have been announced as April 9, 10, and 11, 1958, by W. R. D. Nickelson, Conference Coordinator for the Engineering and Industrial Experiment Station of the University of Florida.

The three-day meeting is one of a series held each spring on the University campus in Gainesville, under the leadership of Donald B. Wilcox, professor of industrial engineering. The sessions bring together men active in the field of safety industry, construction, insurance, and government throughout the southeastern United States.

The theme of the 1958 program is "Exchanging Experiences." Speakers will include Prof. William N. Cox, Georgia Institute of Technology, former president of the American Society of Engineering Education; George Aro of United Engineers and Constructors, Philadelphia, Pa., Daniel Lenahan, an authority on vibration problems, and others.

Special features include a chalk talk by Harold Rossoll, the artist who created the famous "Smokey-the-Bear" symbol of the U. S. Forest Service; demonstrations of fire hazards and alarm systems, and a group-participation demonstration of the newly developed technique of "brain-storming" ideas. Sessions will also deal with eyesight conservation, industrial disaster planning, and various technical problems.

Florida firms hold two of the world's industrial no-injury records —one in textile manufacturing and one in quarrying. In spite of this the Florida Industrial Commission recently stated that the 1956 industrial accidents in this state incurred a direct loss of $18,000,000.

Western Safety Congress Appoints Chairman

Edward Mills, business consultant, has been named general chairman for the 1958 Western Safety Congress and Exhibits.

J. T. Blalock, president, Greater Los Angeles Safety Council, said that Mills, a member of the chapter's executive committee, will coordinate the entire program for the three-day safety meeting which will be held at the Ambassador Hotel, Los Angeles, March 17, 18 and 19. The Congress and Exhibits will present sessions on business, industrial, traffic, commercial vehicle, home and off-the-job safety. The exhibits area, Blalock said, will feature the largest collection of safety services and equipment ever assembled in the West.

The Western Safety Congress and Exhibits is sponsored by the Greater Los Angeles Safety Council and is the largest safety meeting in Western America.

Driver Training Leaves 'Horse-and-Buggy Age'

Too many beginning drivers are still being taught to drive on a "catch-as-catch-can" basis and wind up "driving by the seat of their pants," a leading traffic safety official said recently.

Thomas N. Boate, manager of the Accident Prevention Department of the Association of Casualty and Surety Companies, said that as recently as the end of World War II the vast majority of drivers were being taught to drive by either a relative or a close friend and that many are still learning in this manner.

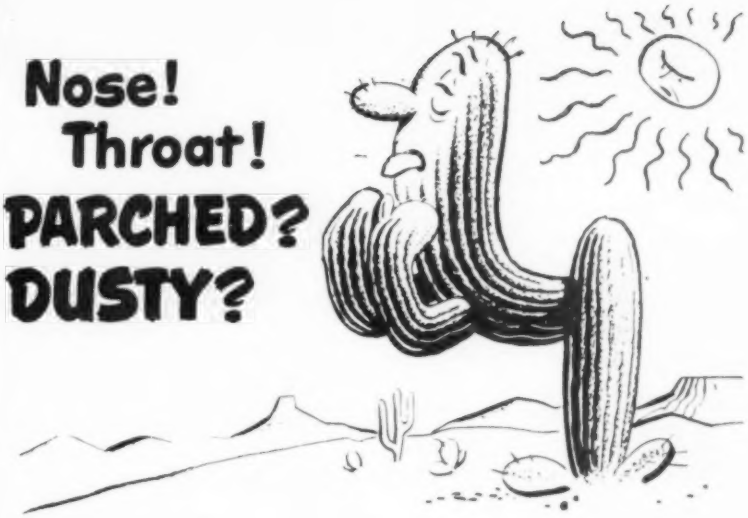
"This system of training is remarkably successful," Mr. Boate said, "in passing along to each new generation of drivers the mistakes of preceding generations." He added that the nation's best hope for improving the abilities of its 80,000,000 licensed motorists lies in properly educating drivers while they are young. "The nearly one-and-a-quarter million high school students enrolled in driver education courses in the United States," he said, "are receiving far better training today than the average driver has been able to enjoy in any period in the history of the automobile."

In the mid-30's, he said, a concerted drive was begun by the Association's capital stock casualty and surety member companies to expand and improve driver education in the nation's public and private high schools. Today, more than 11,000 schools offer some type of driver education course as a part of their curriculum and enrollment is approaching the 1,250,000 mark.

Equally as important, Mr. Boate said, is the fact that these courses are being taught by educators especially trained to turn out drivers who can do more than simply "propel" a car—today's novices are being taught the hazards and responsibilities of driving as well as the skills. In short, he said, they are being taught how to stay alive when they drive.

Mr. Boate said that in the early days of driver education, courses were usually taught by an untrained teacher—the assignment generally going to the faculty member with the lightest teaching schedule. "Today," he said, "the number of especially trained teachers is increasing each year. In 1957 members of the Association staff trained or assisted in training a total of 1,303 driver and safety education teachers in 15 states. The supply of qualified driver education teachers has increased to the extent that some states already require applicants under 18 years of age to have successfully completed an approved driver education course before a driver's license will be issued. More states are presently considering similar legislation."

Mr. Boate said that while it has taken 50 years to begin to get driver preparedness out of the horse and buggy age, the day may come when all motorists will be able to enjoy the benefit of adequate preparation for the life-and-death business of driving.



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(For details, use Key # O-16 on card on page 1)

THE FIRE FRONT

Use of Automatic Sprinkler Systems

There has been a rapidly increasing appreciation of the value of automatic sprinkler systems, particularly in connection with safety to life provisions in existing buildings, and the need for the full use of this equipment by fire departments has become of even more importance. It is general knowledge that water from an operating sprinkler system is delivered to the seat of the fire more effectively than by any other method. Consequently the supply of water to a sprinkler system should be assured and supplemented by connecting hose lines to the fire department sprinkler connections where possible. Experience indicates that this practice, although frequently called for in fire department regulations, is not always observed, and individual fire losses are frequently much greater as a result, according to a bulletin issued by the National Board of Fire Underwriters.

The fire record shows that a very high percentage of the fires in sprinklered buildings are extinguished or controlled by the sprinklers.

Most sprinkler system piping is designed on the basis that a fire will be controlled with the opening of a relatively small number of sprinklers. If all or a large portion of the sprinklers in an area open, the flow from individual sprinklers, as furnished by the regular supply, may be so small as to be ineffective. Further, the draft of pumpers at hydrants may so reduce the pressure in the city mains that the sprinkler system will be robbed of water. It is well established, however, that increased capacity of pipe lines and greater discharge from sprinklers can be obtained by increasing the pressure at the source of the supply. Most sprinkler systems in buildings are provided with outside fire department connections through which the fire department can pump water into the system regardless of the condition of other supplies.

Pumper Connection

Therefore, it is essential that a hose line from a pumper be connected to the sprinkler system of the building on fire; also of any building seriously exposed by the fire. Whether this is the first or second line, or from the first or second engine company to arrive on first alarm response, makes little difference.

Two or more lines should be run to the outside connection and adequate pressure such as 150 pounds or higher carried at the pumper. Where the fire involves a large area, two or three pumpers should be connected as a 750-gallon pumper can supply only about 35 heads, and a 1000-gallon pumper about 50. Use of siamese connections may be necessary to permit enough lines to be laid so the friction loss will not be excessive. Generally a 750-gallon pumper will need more than two lines if located more than 200 feet from the connection, and a 1000-gallon pumper will need more than three lines of hose.

Fighting fires in sprinklered buildings calls for exact knowledge regarding sources of water, details of piping and valve arrangements, hydrants, etc. Sprinkler systems should be studied as part of the company inspection program and a definite fire fighting procedure developed for each sprinklered building. Because of the difference in plant layouts, construction, nature of occupancy and the fire protection system, specific and definite operational procedures are essential.

A considerable number of the instances of unsatisfactory sprinkler operation have been due to the water being shut off. This demonstrates the importance of fire department notification whenever the sprinklers are to be cut off so that the fire department can plan proper

1957 Losses Top $1 Billion

Fire damaged or destroyed an estimated $1,023,190 worth of property in the United States last year (1957), the National Board of Fire Underwriters has reported. This is 3.4 percent more than that for 1956, when estimated monthly losses totaled $989,290,000.

According to Lewis A. Vincent, NBFU's general manager, estimated losses for December (1957) totaled $91,519,000, an increase of 21.5 percent over losses of $75,321,000, reported for November (1957) and a decrease of 5.1 percent from losses of $96,485,000 reported for December, 1956. These estimated insured losses include an allowance for uninsured and unreported losses.

FIRE LOSS TABLE

Month	1957	1956	1955
January	$115,272,000	$96,972,000	$75,265,000
February	95,569,000	84,041,000	85,046,000
March	104,565,000	89,315,000	88,197,000
April	85,994,000	84,624,000	78,632,000
May	79,045,000	87,681,000	71,789,000
June	69,710,000	74,770,000	70,828,000
July	77,814,000	68,752,000	61,614,000
August	78,364,000	74,930,000	71,103,000
September	72,264,000	70,118,000	65,970,000
October	77,753,000	81,121,000	58,778,000
November	75,321,000	80,481,000	68,784,000
December	91,519,000	96,485,000	89,212,000
TOTAL	$1,023,190,000	$989,290,000	$885,218,000

measures of control. A quick opening of the control valve may be possible, putting the system back into service or the insertion of a plug in a leaking or ruptured pipe may permit the restoration of water supply to at least a portion of the plant.

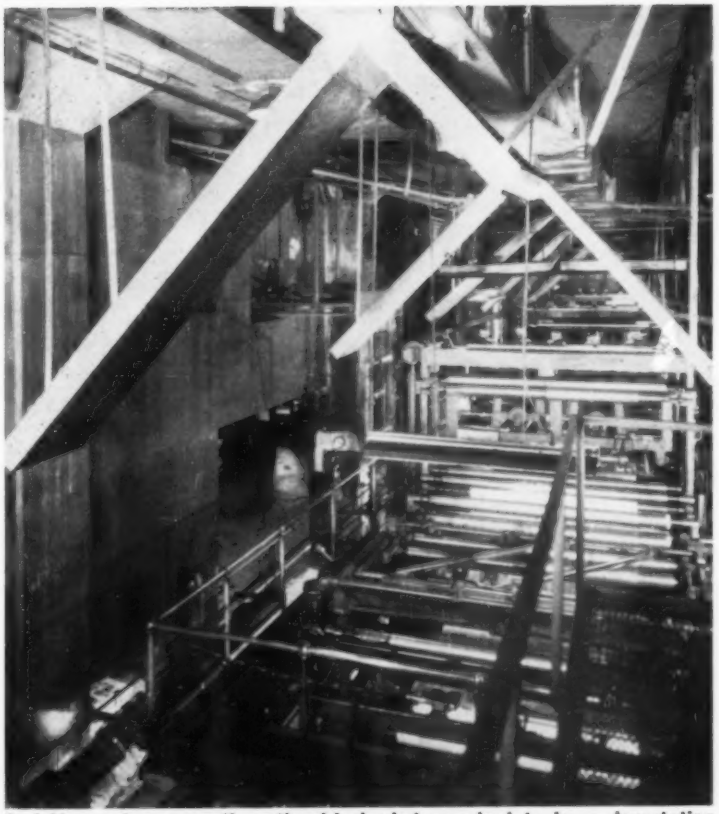
Sprinkler Alarm

Sprinkler systems should have devices which will sound an alarm when there is a flow of water. Such devices may be gongs on the outside of the buildings, but water flow alarms are most effective if they go to a central station or fire alarm headquarters or a fire station.

Many departments carry appliances which can be used on the individual sprinkler to stop the flow. Others close the riser or floor control valve. It is of prime importance, however, that no such cutting off of the sprinkler systems by control valves be made until there is positive assurance that the fire is out and it has not extended to any other part of the building.

When a shut-off is made by the fire department, someone should be left at the valve until the sprinklers can be replaced and the water supply restored. If the system cannot be put back into service, watch service should be maintained on each floor, in addition to the man at the control valve, until all danger is past. Despite appreciation of the value of sprinklers in the control of fires, cases continue to arise involving poor judgment by the fire departments or their lack of proper knowledge in failing to immediately connect up to the outside siamese connection and maintain proper supply, or in robbing systems to supply hose lines, or in premature shutting off of sprinkler systems.

The practice of not shutting off sprinklers except when convinced that further operation will simply waste water or serve to produce heavy water damage, should be one of the cardinal rules in every set of fire department regulations. Supplementing this, it is also urged that the procedure outlined in this bulletin be made a part of standard fire department procedures where automatic sprinklers are involved.



Sprinkler system promptly extinguished what promised to be a devastating fire which erupted in this newspaper press room. No editions were missed.

SPRINKLERS SAVE THE HEADLINES

When fire flashed across the press room of the Pittsburgh Post-Gazette, Pittsburgh's morning daily newspapers, early Tuesday, Dec. 17, 1957, it was quickly extinguished by sprinklers.

Thirteen sprinkler heads that have waited over the presses for 20 years opened to extinguish a fire that was fed by ink vapor, the paper in the high speed presses, and grease. As a result of their speedy action it was possible to clean up the presses and print the next morning's papers.

The sprinkler system consists of two parallel water pipes with sprinkler heads spaced 10 feet apart. The piping runs the length of the press room, which is about 90 ft. long and 20 ft. wide, and is suspended from the ceiling close to the side walls. Installation was made in 1937.

The blaze started in a conveyor that carries printed papers from the press to the mailing room. Flames then flashed back through ink vapor, over grease around the press machinery, and burned out the ribbon of paper threaded through the press. The pressmen crew of about 40 men were driven out by smoke after exhausting hand fire extinguishers. Pittsburgh firemen were on hand to take over if fire outreached the sprinklers, but their five hoses found no flames to extinguish.

Operation of the sprinkler system limited the cost of damages to an estimated $25,000, much of which was from the water that extinguished the fire. Fire and water reached only about 3,000 pounds of paper. The building as well as presses were probably saved by prompt action of the sprinkler system.

Picture by courtesy of the Power Piping & Sprinkler Div., Blaw-Knox Co.

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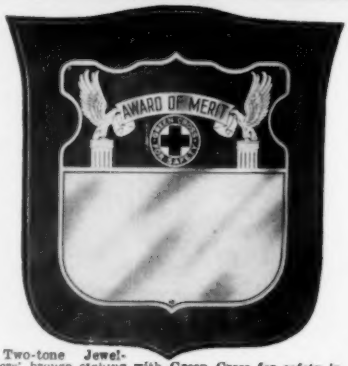

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(For details, use Key # O-17 on card on page 1)

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THE SURETY RUBBER CO.
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(For details, use Key # O-18 on card on page 1)

Supervision Urged For Amateur "Rocketeers"

Amateur rocket programs are extremely dangerous and should be prohibited in the interest of public safety "until safe launching sites are established and until thoroughly qualified personnel, competent to supervise" such programs can be provided.

This warning was sent recently to fire marshals and other public safety officials by the National Fire Protection Association.

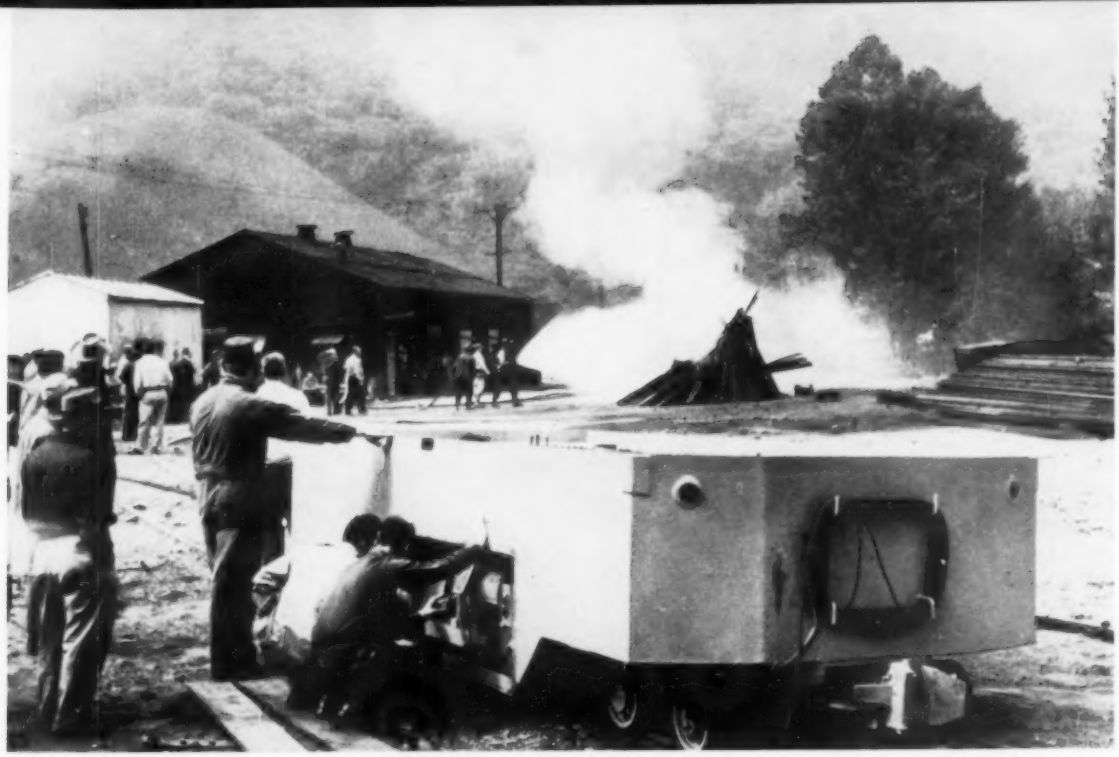
In addition to the serious explosion hazard associated with rocket launching, according to the NFPA, there are also "lesser but very real dangers introduced by the handling and mixing of rocket fuels, not to mention the threat to life and property from missiles created by successful rocket launchings."

The NFPA specifically recommended to public safety officials that:

1. Because of the danger to the boys themselves, as well as to others, the hazardous phases of rocketry—fuel handling and rocket launching—should be conducted only at specified safe locations (e.g. outdoor rifle ranges) and under strict supervision by qualified persons thoroughly familiar with the hazards involved.

2. There is ample evidence to indicate that many of the teenage rocket builders are unaware of the hazardous nature of their projects and are uninformed on various technical aspects of rocketry. Assuming that this interest in the dangerous business of rocketry is actually stimulated by a desire for science education, some state-wide method of communication should be established (preferably within or through the school system) whereby amateurs can obtain answers to their rocket building problems from experts.

3. Until safe launching sites are established and until thoroughly qualified personnel competent to supervise an amateur rocket program can be provided it appears to be in the best interests of the general public to prohibit the manufacture and launching of rockets by amateurs.



Miners demonstrate effectiveness of highly maneuverable fire truck which brings 2100 gallons of water to scene.

Mine Fires Get the Works

Fire-fighting is hard work anywhere, but underground in a coal mine the difficulties facing firefighters are almost unbelievable.

Drafts of air feed the flames, heavy smoke and gases repel the firefighters, there is a constant danger of explosions and cave-ins, and it is difficult to bring equipment close to the fire for effective use.

Realizing these difficulties, Pittsburgh Consolidation Coal Company's operating divisions last year set out to develop equipment suitable to combat mine fires, before many of these problems could develop. Forward-looking management of Pittsburgh Coal Company, one of the operating divisions of "Pitt Consol," decided that the problem could best be answered with a mine fire truck capable of remaining underground at all times, carrying a heavy "payload" of water, and pressure equipment capable of directing the water to the spot where it would do the most good.

Fireman shows volume of fog produced with special nozzle. The same nozzle can also project a straight stream.

With these prime objectives in mind, the Pittsburgh Coal Company consulted equipment engineers who worked out plans for a new type of underground fire truck. Officials of Pittsburgh Coal expressed satisfaction with the new fire truck and believe it is the answer to their needs on this phase of their mine safety program.

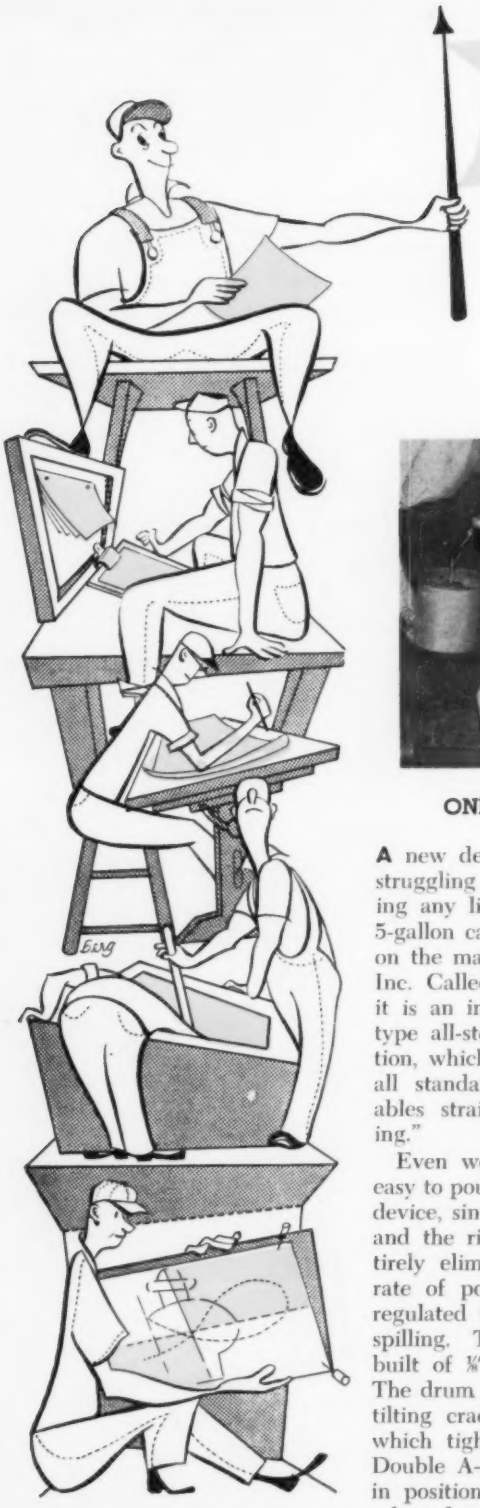
The truck was tested extensively under all conditions at various mines of the company. It is compact, low-slung, highly-maneuverable and has a combination fog and straight stream nozzle of advanced design.

Direct discharge stream scatters dirt and rock. Stream can be projected for more than 100 feet with almost no arc.

Its chief recommendation is its ability to deliver 2100 gallons of water to the scene, ready for rapid discharge at high pressure. A heavy stream of water can be projected from the nozzle for a distance of 100 feet or more, with almost no arc. This is important because of the low roofs in most mines.

(Continued on page 56)

KEEPING UP WITH



CHEMICAL HAZARDS SERIES
other articles in Jan. & Feb.

ONE-HAND POURER

A new device to eliminate messy struggling and juggling when pouring any liquids or solutions from 5-gallon cans has just been placed on the market by Litho Research, Inc. Called a "Tippa Can" Holder, it is an ingenious pivoted cradle-type all-steel unit with tilting action, which fits and securely holds all standard 5-gallon drums, enables strain-free "one-hand pouring."

Even women employees find it easy to pour solutions with the new device, since no lifting is required, and the risk of back-strain is entirely eliminated, it is said. The rate of pouring can be precisely regulated to prevent splashing or spilling. The holder is ruggedly built of ⅜" thick steel bar stock. The drum is clamped firmly in the tilting cradle by a circular band which tightens with a wing nut. Double A-Frame legs lock rigidly in position, but may be instantly released and folded together for storage.

For details, use **Key # CH-1** on inquiry card on page 1.

PORTABLE EMERGENCY EYE-WASH FOUNTAIN

A portable emergency eye-wash fountain, for instant eye first-aid where normal water supplies are unavailable, is now manufactured by Haws Drinking Faucet Company. This new product, Model 8950, is the latest addition to Haws' line of emergency facilities which includes eye and face wash fountains, drench showers and numerous model variations. It is designed for use by construction crews, chemical crews—any group working in remote areas where water is not available.

The corrosion-proof stainless steel tank is complete with handy carrying strap, and holds three gallons of water instantly ready to flood the eyes and wash away dangerous substances or particles. Specially designed fountain heads project water into the eyes, with a soft flushing stream. Pressure is built up within the tank by means of the large pump handle. This pressure is maintained for an 8 hour day. Model 8950 weighs approximately 40 lbs. when filled with water.

For details, use **Key # CH-2** on inquiry card on page 1.

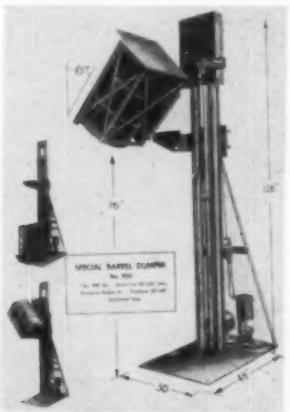
ACID LEAK-INDICATING TAPE

A plastic, leak-indicating tape for wrapping acid and caustic transport pipe lines has been developed by

Neirad Industries, Inc. The tape can be wrapped around pipe lines and will indicate by a discoloration of the tape anywhere a leak or "weep" occurs. It is intended for areas where leaking acid or caustic would be a hazard to personnel, as well as equipment.

The tape is made of fiber glass with a vinyl covering and coated with a patented indicator. Acid lines are covered with a red-colored indicator that turns yellow when triggered by leaking acid. A white colored tape is used for caustic lines and leakage of caustic liquid turns the color purple. The indicating material is covered by a thin protective coating to prevent triggering by fumes or climatic conditions. The tape is available in widths of from 1 to 38 inches, and in lengths up to 300 feet.

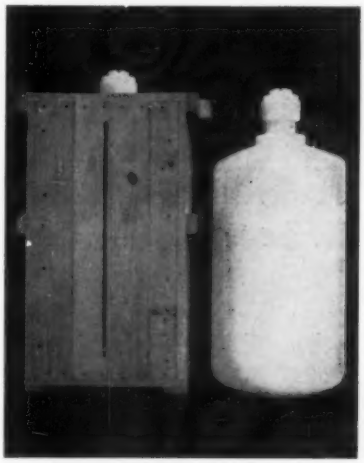
For details, use **Key # CH-3** on inquiry card on page 1.



BARREL DUMPER

For handling chemicals in barrels, an Electric-Hydraulic Elevator and Dumper has been announced by the Grand Specialties Company. The No. 900 Barrel Dumper has a load capacity of 800 lbs. and will lift a barrel or drum 23″ x 35″ maximum from floor level, to a dumping height of 76″. An automatic stop at the dumping height turns the drum to a 45° dumping angle and the complete raising, tilting and lowering cycle is made automatically. Base platform is 30″ x 48″ and over-all height is 126″.

For details, use **Key # CH-4** on inquiry card on page 1.

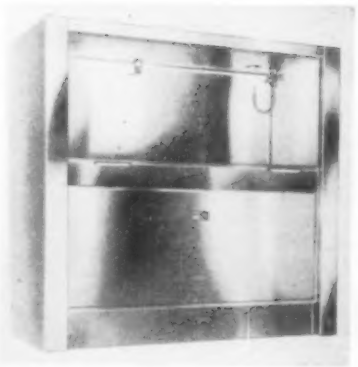


ACID HANDLING CARBOY

A new, lightweight polyethylene container for handling acids has been introduced by the Industrial Safety Supply Co. Available in 6½ and 13-gallon capacities, the chemically inert container is suitable for shipping, storing or handling many corrosive liquids. The container, known as Poly-Box Carboy, is packed in a wood jacket which features a liquid level slot and triangular corner posts for rugged use.

According to the company, the bottles will flex but not crack when contents are frozen or subjected to varying atmospheric pressures. The carboy is easy to fill and pour and fits all acid handling equipment. It is suitable for use in the chemical, electrical, pharmaceutical, oil and related industries.

For details, use **Key # CH-5** on inquiry card on page 1.



FUME HOOD CUTS RESIDUE DEPOSITS

A heavy stainless steel fume hood with spherical corners throughout for use in laboratories where hazardous radioactive and perchloric material is involved, has been designed by The Warren Corporation. Use of ½″ radius spherical corners eliminates construction cracks and seams that collect residues of dangerous and corrosive agents. These rounded corners, integrally-welded, are ground smooth and finished to match adjacent surfaces to the working area, and make cleaning positive and easy. A raised front rail along the leading edge of the hood protects against spillage on the front of the hood and down the base cabinet.

The Warco Fume Hood consists of two basic parts—the inner stainless steel shell with working surface and fluorescent light assembly fits in an outer superstructure housing of 18-gauge cold rolled steel. A sliding sash frames either ¼″ safety or explosion-proof glass on stainless steel. Lighting assembly housings are sealed behind shatter-proof wired glass.

For details, use **Key # CH-6** on inquiry card on page 1.

DRUM LIFT POURER

The Sterling, Fleischman Company has announced their newest product, MODEL CP-1, Sterling Hydraulic Drum Lift for Controlled Pouring.

The unit is equipped with a mechanical arrangement for ease and safety in pouring drum contents. The gear reducer control device is completely enclosed and assures self-locking, and absolute control at any pouring angle. It gives the operator complete mechanical control where the contents of half empty drums must be carefully poured. The pouring control affords maximum safety when caustic or toxic materials are being handled by enabling the operator to remain well away from the pouring operation. The unit is basically designed to handle 55 gallon drums but can be adapted to handle other sizes in steel or fibre drums on special order.

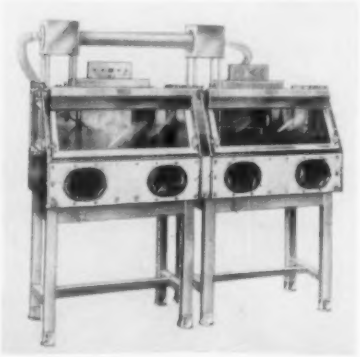
The unit has a lifting capacity of 750 lbs. and drums can be raised to a height of 70″ in a matter of seconds by a foot actuated hydraulic jack. It is mounted on 6″ oil, gas and spark proof wheels for safety and ease of operation in hazardous plant areas.

For details, use **Key # CH-7** on inquiry card on page 1.

MODULAR SAFETY ENCLOSURES

An all-purpose stainless steel safety enclosure, recently announced by S. Blickman, Inc., features modular construction, which allows the use of one or a combination of these units in any desired arrangement. In addition, component parts are available to adapt the enclosure to the particular need of the user. The enclosure will be of interest to those in the medical, biological, radio chemical, pharmaceutical, packaging, research, and precision instrument-assembly fields.

The basic unit is 36½ inches long, 24 inches high, and 28 inches deep. It is fabricated from Type 304 stainless steel and has a sloping front with a hinged automotive-type



safety-glass window for maximum visibility. The gasketing material used is Neoprene, vulcanized to provide the required close fit and tightness. Each unit bottom has a five-inch cup sink fabricated as part of the bottom tray.

For details, use **Key # CH-8** on inquiry card on page 1.

LARGE MAGNETIC STIRRER

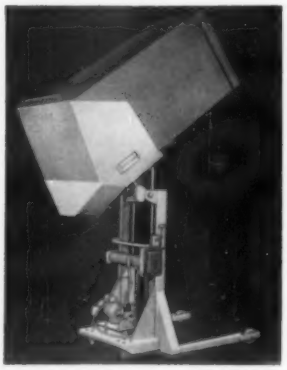
Magnetic stirring, a method for complete mixing of laboratory solutions, is the basis of the newest stirrer developed by Fisher Scientific (which recently pioneered "stirring hotplates," "oscillating hotplates," a variety of other appliances in the field). The new Fisher JUMBO Magnetic Stirrer handles liquids of a wide viscosity range in quantities up to 3 gallons.

Any glass, porcelain, nonmagnetic metal or plastic vessel can be used, open or closed, even sealed under vacuum or pressure. Contents are mixed quietly, at speeds starting at an almost stationary "low" to "high."

Magnetic lines of force do the work, eliminating contaminant-collecting shaft and impellers of mechanical stirrers, permitting full access to the top of the container. A Teflonsealed Alnico magnetic bar, placed inside the container, revolves at the same speed as the stirrer motor (which is rated at 1550 rpm).

The Fisher JUMBO Magnetic Stirrer uses 115-volt 50/60-cycle a-c, comes complete with two Teflonsealed bars: a 2⅝″-long bar for 1-to-3 gallon samples, a 1⅜″ bar for those under a gallon.

For details, use **Key # CH-9** on inquiry card on page 1.



CHEMICAL DUMPER

A new Tubar Twin Cylinder Dumper, engineered for fast, efficient handling of bulk containers in a wide variety of industrial applications, has been added to the line of dumpers, manufactured by the Tubar Dumper Division of Uhrden, Inc. Compactly designed for bulk handling service in paint plants, pharmaceutical houses, chemical processing operations, granular plastics, and wherever bulk materials are handled, the new Tubar Dumper elevates loads up to 4,000 pounds at heights up to 60 inches. It is said to combine rug-

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(For details, use Key # O-20 on card on page 1)

11-8

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- Simplifies pipe layout
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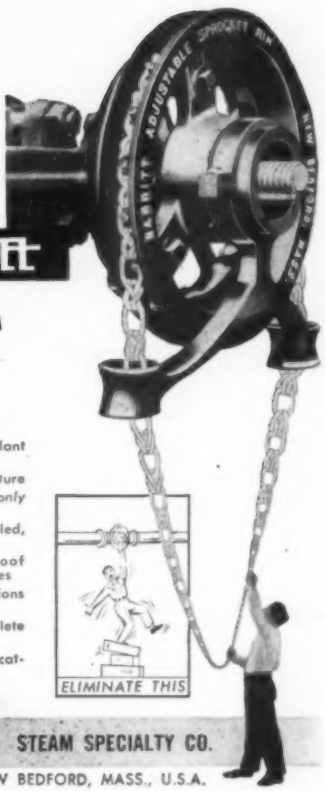


Babbitt STEAM SPECIALTY CO.

11 BABBITT SQUARE, NEW BEDFORD, MASS., U.S.A.

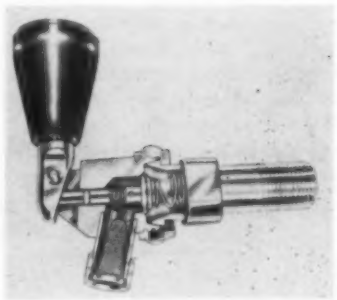
(For details, use Key # O-19 on card on page 1)

gedness, stability and ease of operation with positive safety features. Loads can be stopped and held at any point throughout the dumping cycle.

The motor-driven dumper utilizes conventional power lines as a source of electricity. Some models can be made portable. Splash-proof and explosion-proof power features are optional.

For details, use **Key # CH-10** on inquiry card on page 1.

STAINLESS DISPENSING FAUCET



An improved corrosion-resistant faucet constructed of 303 stainless steel with Teflon O-ring seals has been made available by the Eco Engineering Division of Economy Faucet Co. Designed to dispense corrosive and flammable fluids, the unit has been approved by the Factory Mutual Engineering. The faucet provides both fluid and vapor-tight seals over a wide temperature range. Sealing is accomplished by internal system pressure which eliminates seizure problems encountered in mechanically preloaded dispensing equipment.

Many safety features have been achieved in the design and construction of the faucet, according to the company. In tests on flammable solvents conducted by Factory Mutual Laboratories, the anti-flash screen of faucets used on storage drums successfully prevented propagation of any flames entering the drum through the spout. The faucet is self-closing when not held open manually and the Teflon seals give positive shut-off with no after drip. A guard prevents the unit from being jammed in the open position.

The faucet is now available in two sections so that the dispensing end may be removed for easy chemical or steam sterilization, while the shank remains as a permanent installation in the drum. A stainless steel screw cap with Teflon seal is available as optional equipment to seal the shank. With this two-piece assembly, the drum can be moved without danger of damaging the faucet. Shanks can be supplied with interchangeable sizes of ⅜", ¾" and ½" with tapered threads that afford a snug fit in the bung threads of drums.

For details, use **Key # CH-11** on inquiry card on page 1.

DRUM & BARREL TRUCK

Industrial Products Company announces a new hand truck for drums and barrels. All steel construction, strong and serviceable, it provides easy movement of loads

up to 1000 pounds and accommodates containers 15″ or more in diameter and 24″ to 35″ in length. The chime hook is adjustable and locks in any fixed position.

The unit gets in and out of tight places without effort. Picks up and deposits loads on floors, tightly packed rows, on and off pallets up to 8″ high.

Large roller bearing wheels with solid rubber tires provide ease of movement over all types of floors and surfaces.

For details, use **Key # CH-12** on inquiry card on page 1.

FLEXIBLE BUCKETS

A new line of flexible, lightweight buckets, and pails of reinforced molded rubber fabric, has been introduced by Cauchotex Industries, Inc. Fortex containers are not plastic or galvanized metal. They derive their strength and flexibility from a patented manufacturing process which gives a tough, reinforced molded rubber fabric that resists acid, lime plaster, paint, etc., and is practically indestructible, as well as leak-proof, mold-proof and rust-proof.

Made in one piece with a heavier top rim and rounded corners, they are graduated, nest for easy storage, and are available in three sizes and five different colors.

For details, use **Key # CH-13** on inquiry card on page 1.

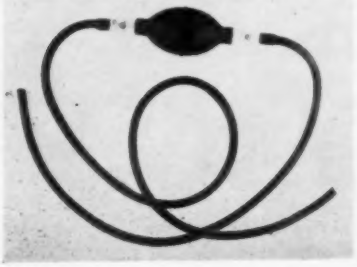
POLYETHYLENE FLASKS

Filtering and Erlenmeyer flasks, 500 cc., of high temperature polyethylene now available for the first time, according to Palo Laboratory Supplies, Inc. These are extra heavy weight to withstand vacuum and for routine laboratory use. They are chemically resistant at high temperatures and have a high softening point.

For details, use **Key # CH-14** on inquiry card on page 1.

SELF-STARTING SIPHON-PUMP

A new hand-operated, self-starting siphon-pump designed for the safe handling of concentrated acids has been announced by the General Scientific Equipment Company. The siphon-pump, called Model P, has newly developed check valves of duPont "Alathon," a compound which is unaffected by concentrated hydrochloric, sulfuric and hydrofluoric acids (at room temperature) as well as alcohols, gasoline and most industrial solvents. Hand bulb and tubing are of neoprene. A full seven feet long, the siphon-pump is said to permit speedy transfer of dangerous liquids with complete operator safety.



For details, use **Key # CH-15** on inquiry card on page 1.

STEEL DRUM DISPENSER

Without use of tools, one operator easily attaches and securely locks this patented Drum-Karrier to any standard steel drum for safe, non-tilting transit via monorail or crane, or for hoisting with chain block. Improved tilt blocks hold drum in vertical position during travel or hoisting, and permit one man to safely control tilting of drum for mixing or dispensing contents over a receiving tank. Equipment is easily and quickly removed from hoist hook. Drum-Karrier fits all standard double chime steel drums. It is positively foolproof; requires no complicated directions or instructions for safe and efficient usage, according to the manufacturer, Morse Manufacturing Company, Inc.

For details, use **Key # CH-16** on inquiry card on page 1.

NON-SKID REAGENT CARTONS

To promote chemical safety, Fisher Scientific (who recently introduced unbreakable aluminum cans for hy-

drogen peroxide; polyethylene cubes for corrosive bases) announces that it will routinely package its chemicals in special nonskid cartons. Hundreds of tiny welts in the paperboard tops and bottoms of the cartons will help keep the stacks safely in place on the stockroom or reagent shelf.

For details, use **Key # CH-17** on inquiry card on page 1.

New Safe Driving System Announced

(from page 33)

it," Mr. Smith said. "A person who practices the system 100 percent can drive for 10 years without ever screeching a tire or causing a passenger to brace himself for a sudden stop."

Because of Mr. Smith's earlier efforts with the Hess Cartage Company in Detroit, general manager E. S. Hess said the company's accident insurance claim rate was cut 66 percent and the firm's accident cost was reduced by $130,000 annually.

12-Point Rating Scale

In the last six months of 1957, Mr. Smith instructed safety directors from 100 fleets representing a total of 100,000 trucks. After completing the course, the safety directors can return to their fleets and evaluate their own drivers on a 12-point rating scale and, if necessary, show the drivers how to change their seeing habits to become better drivers.

Included among the national safety groups that have cooperated with Mr. Smith are Northwestern University Traffic Institute, the American Trucking Associations, and Automobile Transport, Inc.

Fire Control Formula

A formula for emergency roof ventilation of industrial plants to aid fire control and minimize damage has been announced. John J. Cronin, General Motors Vice President in Charge of the Manufacturing Staff, said the formula evolved from studies by Armour Research Foundation, Illinois Institute of Technology, (Chicago, Ill.) with a scale model building outfitted with fire and smoke generating apparatus.

Measurement of heat vented through roof openings in the scale model appeared to represent with reasonable accuracy the relative quantities of heat that would be vented from a full scale building. Purpose of the tests was to find out whether special ventilators or conventional monitors—or both—on industrial building roofs provide safeguards against accumulating smoke and hot gases over a fire area in a plant. Mr. Cronin said the results showed that monitors or ventilators, combined with draft curtains of sheet metal or other non-combustible materials, at specified intervals within a roof area would vent smoke and hot gases with sufficient effectiveness in an emergency to aid fire control.

"Our unfortunate experience in the 1953 Detroit Transmission Division fire at Livonia (Mich.)," Mr. Cronin said, "indicated that concentration of smoke and hot gases beneath the plant roof not only contributed to fire damage by actual combustion, but also caused structural failure by rapidly overheating the roof trusses or upper framework. The problem, therefore, was to find out whether a general formula or method could be devised for venting of gases from a fire area to preserve the building structure, protect personnel and aid fire-fighting crews in isolating damage."

"We realize," he pointed out, "that these findings are amendable to reasonable interpretation. They are not hard and fast rules even in our own organization, but we feel they are an important research contribution to the problem of emergency ventilation of buildings."

"We should add that our ventilation recommendations are not related to any standards or regulations of other organizations, and of course they apply only to our plants. Obviously, many of our ventilation problems would not be applicable to those of other industries or plants," he added.

He explained that preliminary study of the emergency ventilation problem revealed very little recorded experience and few technical facts about the physics of such fire action in an industrial plant.

Thus, scale model tests in this unexplored field were designed to get fundamental mathematical data on which suitable standards for emergency ventilation could be based. In special cases, he said, it

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CLEAN
AUTOMOTIVE
INDUSTRIAL
PARTS 3 WAYS!
1. Continuous flow hose
2. Air Agitated soaking tank
3. "Super Power" Jet Air Gun
Kleerflo SUPER CLEANMASTER MODEL 50
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Wash entire engine blocks or 200 pounds of smaller parts at once and fast! A unit that will definitely reduce your operating costs to unheard-of minimums.
AUTOMATIC
HOT TANK
POWER
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America's Foremost Producer of Parts Cleaning Equipment
PRACTICAL MFG. CO.
2840 4TH AVE. S. • MINNEAPOLIS, MINN.
(Use Key # O-21 on Inquiry Card on page 1)

would be possible or even necessary to deviate from the formula.

In brief, the formula outlines vent-to-floor area ratios which are related to the particular degree of fire hazard involved in a plant or certain areas of a plant. A similar ratio for use of draft curtains over various size building bays—also depending on the degree of hazard—is provided for. Draft curtains in prescribed locations on the underside of the roof, fence off ceiling areas to confine the smoke and hot gases within zones from which they can be vented via monitors or roof ventilators.

Mr. Cronin explained that findings of Armour Research Foundations' Heat-Power Laboratory now are the basis for recommendations of the General Motors Building Code Committee recently submitted to all Manufacturing Divisions.

Jet Fuels Increasing Static Electricity Problems

Increased handling of jet fuels, which are more explosive than gasoline, confronts the petroleum industry with serious static electricity problems, the Winter General Meeting of the American Institute of Electrical Engineers was told recently.

"The petroleum industry has always had the problem of static electricity," J. C. Howard, Standard Oil Company (Indiana) told a symposium on refining and chemical processes in a paper, "Static Electricity in the Petroleum Industry." "Many fires of unknown origin have been attributed to static electricity with some justification. Conclusions after careful investigations show that certain operations can produce static sparks of incendiary proportions. Because ignition by static sparks is practically never witnessed, and no evidence remains, the problem requires a study of fire reports to determine if conditions were favorable for the generation of static electricity.

"A better understanding of protective requirements has been gained in recent years by increased knowledge of the problem. Protection has improved and some protective measures originally thought to be necessary have practically disappeared. A good example of the latter is the drag chain formerly attached to oil trucks. However, the industry is confronted with some unsolved static problems which are not new, but which have assumed serious proportions because of the increased handling of jet fuels that possess a much broader explosive range than that of gasoline."

The petroleum industry, he said, is now studying the following methods to solve the static electricity problem: Rendering the oil conductive by some type of chemical additive; exposing the free oil surface to radiation, thus making the surface region conductive to ionization, blanketing the free oil surface with metallic balls; making the vapor space above the oil an inert atmosphere; subdividing the surface and volume by metallic egg-crate construction; dissipating the charge by means favorable to relaxation of charge; use of flammable gas in the vapor space to maintain a mixture too rich to ignite; counter potential methods, where an electric field is applied in opposition to the static generated field; and limiting rate of oil flow to safe value.

Steel Scaffolds

(from page 21)

falls and prevent even minor debris spillover to the pavement below.

As demolition progresses downward, the scaffolding comes down with it. Well designed scaffolding frames save wreckers considerable time both during erection and the subsequent tear-down. Some types of scaffolding come in standard sections ranging in height from 3 ft. to 6½ ft., in 5-ft. widths, and in a variety of standard shapes that may incorporate deep or shallow trusses or ladders. Virtually any built-up shape is possible to give close tie-in with flat, offset or curved walls.

Photos: Courtesy of The Patent Scaffolding Co., Inc.

E. E. Jones

Emeral E. Jones, a pioneer designer and engineer of plant machinery guards, died on January 20th in Chicago at the age of 83. For more than forty years, Mr. Jones was associated with H. W. Beegle in the operation of Surty Manufacturing Co., recognized as a leader in the development of guards for industrial machines.

Mr. Jones was one of those instrumental in promoting the first Industrial Safety Conferences and was active at the original conference, out of which was formed the National Safety Council.

Mine Fires Get the Works

(from page 49)

Because the fire truck is of rugged construction, it can remain underground close to points where it may be needed. Even the 600 feet of firehose with which it is equipped can remain in the mine indefinitely. The newly-developed firehose is impervious to oil, acids, rot and vermin. After use, it can be replaced atop the fire truck without drying or other attention. This hose is highly resistant to abrasions.

The fire truck is 18 feet long, seven feet wide and 50 inches high. Units of lesser height and width are available where clearance is limited. The unit carries 200 feet of single conductor cable on a reel at the rear of the tank. Pump motor assembly, including controls and valves, is recessed in the side of the tank for ease of "hook-up" and maintenance.

The tank's high water pressure is delivered by a 20-horsepower, 3500-RPM electric motor directly coupled to a two-stage centrifugal pump rated at 100 gallons of water per minute at 200 pounds per square inch pressure.

Pittsburgh Coal now has 12 of the new Fire Trucks in operation and additional units on order. Pittsburgh Consolidation, which was formed by a merger in 1945, is one of the country's large commercial, independent coal producers. It has 30 mines in Ohio, Pennsylvania, Virginia and West Virginia.

Pictures by courtesy of Mine Safety Appliances Co.

WHAT'S THE LAW?

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

MEMBER . . . . . .
Master Superior Court, New Jersey
American Bar Ass'n, New Jersey Bar Ass'n,
Chairman, Committee on Workmen's
Compensation, New Jersey Bar Ass'n
National Federation Insurance Counsel
Past Commander, American Legion, Post 10,
. . . . . Newark, N. J.

BENZOL POISONING—Causal Relation to Employment Questioned

Where employee during the course of employment was exposed to toxic fumes, the issue at the trial was whether or not the benzol poisoning which the employee had contracted had been caused by the fumes which the employee had been inhaling for about one and a half years. There was conflicting medical testimony as to the causes of the disease, one side saying that by the process of elimination the fumes were the only thing that could have caused the disease, and the other side saying that they did not know what caused the disease but were sure that it was not the fumes. The court held that where the medical experts disagree as to whether the employee's disease is due to the exposures complained of and the true cause of his illness is not shown by the employer's witnesses, the presumptions as to the cause should be resolved in favor of the employee.

Lyons v. Holston Defense Corp., United States District Court, Eastern District of Tennessee, Northeastern Division. No. 985. June 19, 1956.

ARISING OUT OF EMPLOYMENT—Carbon Monoxide Poisoning

An award was properly granted to an employee who was working in a recess or room of a mine owned by

(Continued on page 60)

NEW FLOOR PATCH

A new chemical-resistant, high-strength patching material that can be applied to concrete floors without preliminary surface preparation is now available from The Garland Co., Cleveland 5, Ohio.

Known as Chemi-Patch, it bonds tightly to concrete without requiring prior chipping or cutting around the area to be repaired. Light wire brushing to remove dirt and loose particles provides complete assurance of proper adhesion.

Chemi-Patch forms a durable, non-slip surface with 3 times the compressive strength of concrete. It is unaffected by hydrochloric, lactic and acetic acids as well as urea solution and ammonium hydroxide. It also is resistant to salts, petroleum products, vegetable and fruit sugars, oils and caustics.

Easily troweled-on, Chemi-Patch can be applied in ⅛-inch layers and can be feather-edged. It is ready for light traffic in 18 hours and heavy steel wheel trucking in 36 hours. Available in handy 2½-gallon containers.

For additional information, request bulletin CP-1, The Garland Co., Cleveland 5, Ohio.

(Use Key # O-30 on Inquiry Card on page 1)

THE FIRST AND ONLY UL LISTED EXPLOSION PROOF FLOOR MACHINE!

HILD

UL Listed Explosion Proof Scrubbing Machine

UL Listed for use in Class 1, Group D and Class 2, Group G hazardous locations.

For many years industry has respected Underwriters' Laboratories as the leading authority on safety equipment. Hild now offers you the only UL Listed explosion proof floor machine—designed and manufactured to UL specifications. Unless the explosion proof floor machine you are now using is designed to the same high specifications as this Hild model, it is unlikely that you have full explosion proof protection.

Hild manufactures a complete line of UL Listed explosion proof vacuum cleaners—four models from 6 to 55 gallon capacity—wet and dry pickup.

WRITE FOR FREE BULLETIN ON HILD EXPLOSION PROOF EQUIPMENT

HILD FLOOR MACHINE CO., INC.
1217 West Washington Blvd.
Chicago 7, Ill.

(Use Key # O-22 on Inquiry Card on page 1)

and construction work. Although we have a maintenance engineering section, there is no clear distinction made between maintenance work and other engineering projects. As a result maintenance work, with a few exceptions, is not preplanned. A request for work can be made by anyone who feels there is a need for maintenance or repair work. Generally this is done by production foremen or the craft foremen. In turn this request is properly approved and transferred into a work order. If layout or purchase of equipment is involved it is routed through layout, then drafted, prints are made and the job goes to the shop for completion.

● Howard Leadbeater, *Plant Engineer*, American Pulley Co., Philadelphia, Pa.

There is no reason why a small plant cannot benefit from the same quality of maintenance as that normally enjoyed by larger plants. In our plant we gain much valuable information from the periodic review of work orders, which are analyzed as follows:

A. Maintenance and repair work due to normal wear, fatigue, age, weather corrosion and other causes beyond control.

B. Maintenance and repair work caused by employees' or operators' abuse, neglect, carelessness, or lack of knowledge of machine operation.

C. Maintenance and repair work caused by machine overload or misuse due to methods, processes, or verbal orders exceeding the capacity of the machines.

D. Plant orders directed by management which are performed by the Maintenance Department but are not of strictly repair nature, such as capital installations, moving and rearranging, work to improve employee relations, work to accomplish safety, fire protection, etc.

Maintenance in Little Plants

(Up to 10 Maintenance Employees)

● A. J. Monta, *Chief Engineer*, Welch Grape Juice Co., Westfield, N. Y.

Maintenance operations are as essential in little plants as they are in large plants, perhaps in some respects more so. In our organization, maintenance is divided into planned seasonal, regular, and routine items. To maintain a uniform approach to the maintenance of various equipment we are now in the process of manualizing the maintenance procedures. This is being accomplished by Engineering with plant cooperation. When this is completed we feel much trial and error will be removed from maintenance. A deviation from standard will be established to determine repairs, overhaul, and possible replacement.

● W. C. Bradley, *Plant Engineer*, Cowles Chemical Co., Skaneateles Falls, N. Y.

All plants, large and small, have some common and essential maintenance operations. They fall into

"If you want to get all wrapped up in your work, go ahead and wear torn clothes."

eight categories: Repair and Emergency Work; Preventive Maintenance; Overhaul; Construction Work; Fire Protection; Utilities; Mechanical Stores; Janitorial Service.

The speaker described how the small maintenance force in his own plant is able to carry on these operations with a minimum of paper work. In discussing Mechanical Stores, he stated that, even without a clerk, certain minimum conditions must be met:

1. Have a central storage area for spare parts only.

2. Have access limited only to authorized personnel.

3. Have some method of storing items by department, machine, category, etc.

4. Have some method of recording items removed from stock.

5. Stock critical items after balancing costs against down-time.

6. Take a physical inventory at least once a year.

● Morton M. Charnley, Jr., *Plant Engineer*, Rapids-Standard Co., Grand Rapids, Mich.

With only five maintenance employees in one of our small plants of 50 employees, we do not have a written work order system. Work requests are handled verbally with the supervisor. All work pertaining to services, large jobs, industrial engineering and safety go through the plant engineer.

Within the last two years we have altered our policy regarding the larger repair jobs. We were rather proud of the fact that we could repair almost everything, but we have found it is more economical to let the larger or unfamiliar jobs to outside contractors.

We are now setting up a tool crib where most of our maintenance stores will be kept. We plan to have the attendant also do all tool grinding and cutting to size of tool steel, die repair, and maintenance of small tools. A simple stock record system will be required for our maintenance supplies.

● J. M. Abernathy, *Plant Engineer*, American Cyanamid Co., Kalamazoo, Mich.

Our Kalamazoo chemical plant has about 48 employees, of which four are maintenance mechanics and one maintenance leader. We have a central maintenance shop and the Plant Engineer is responsible for all maintenance. Our mechanics are not organized by crafts; any one is qualified to do any job that comes up, but they do have their specialties. We try to keep paper work at a minimum, but we have a simplified system involving work orders, self-kept weekly mechanic's records, equipment record book, weekly time distribution record.

Labor Relations

● Frank L. Bradley, *Plant Engineer*, Forstmann Woolen Co., Passaic, N. J.

The maintenance shop may have either an industrial union or a craft union, in many cases, both as well

as an independent guard union. The foreman's attitude toward the union steward paves the way for good or poor labor relations. Don't try to make a monkey out of him. He will appreciate your help in saving his face in a trying situation. Treating antagonism with antagonism adds fuel to the fire.

We should recognize that there is no easy or royal road to trouble-free labor relations. Human beings, unpredictable as they are, should never be taken for granted. Your first-line supervisor in the maintenance shop is vital to the interest of both management and the men, and can help to smooth out the bumps. He is well worth your best efforts in his development from the standpoint of labor relations. It may take the legal-type mind to draw up the union contract, but the salesman-type is the more successful in its shop administration.

● George A. Wallace, *Plant Engineer*, Gillette Safety Razor Div., Gillette Co., Boston, Mass.

Our maintenance department is non-union, with a total of 66 employees. It includes a Carpenter Shop, Sheet Metal Shop, Pipe Shop, Paint Shop, Millwrights and Electricians, which until three years ago operated almost separately. Now they are an integrated work force, which is more economical and provides better human relations. It is a middle-of-the-road approach, somewhere in between a strict trade shop and the Jack-of-all-Trades approach. Each trade can now assist other trades as circumstances require, but each shop still has its specialized work.

Preventive Maintenance

● Forrest S. Fischer, *General Maintenance Foreman*, Maloney Electric Co., St. Louis, Mo.

Preventive maintenance consists of establishing the means of reducing maintenance costs through prior knowledge of the necessity for repair, and establishing the methods of preventing unscheduled shutdowns of operating equipment and undue deterioration to building and facilities. It not only reduces maintenance costs by increasing the longevity of machines and equipment but also assures the non-interruption of production schedules. It should be applied in every plant and its only prerequisite is an earnest desire for improvement.

The Yellow Cab Company of Erie, Pennsylvania, has joined the new trend of using changeable copy signs for safety promotion. The tremendous sign erected for them by Erie Flexume has a changeable copy area measuring seven feet high by 33½ feet long, and is illuminated from the interior. The letters used to form the copy are of aluminum in red finish and are two feet high. Copy can be changed in a few minutes time to keep the messages always fresh. The sign can be read day or night from a great distance.

A brochure describing this type of display will be sent free to anyone addressing their request to Wagner Sign Service, Inc., 358 S. Hoyne Avenue, Chicago 12, Illinois.

● Bernard J. Robichaud, *Maintenance Engineer*, Toni Co. Div., Gillette Co., St. Paul, Minn.

Preventive Maintenance is a cost reduction tool consisting of an organized system of maintenance of physical assets which uses inspections, expected part life, and product quality as guides to what actions the maintenance function should take to minimize total plant costs by reducing 1. production breakdown and adjusting downtime and/or 2. repair costs. Our plant is primarily a packaging plant using mostly bottling and cartoning equipment. We use two check lists for preventive maintenance: one is for production items used more than 22 operating days, and the other for items less than 22 days. These check lists were developed from various sources of information:

1. Analysis and evaluation of existing instructions and practices.
2. Manufacturers' manuals.
3. Stockroom spare parts usage records.
4. Machine histories.
5. Talks with manufacturers' servicemen.
6. Production supervisor's comments.
7. Line adjusters' comments.

● John Van Coevering, *Supervisor, Facilities Engineering*, Magnetic Materials Section, General Electric Co., Edmore, Mich.

In our plant we are in the very early stages of a preventive maintenance program, and the records being accumulated will provide in the next few years a good record system as well as a practical working program. Some of the phases of our program are: repetitive servicing, inspections, planned overhaul, machine records, and spare parts inventory. Under repetitive servicing comes such items as lubrication, furnace contactor repair, cleaning of high current rectifiers, cleaning of furnace pits, motor greasing, machine cleaning, etc. All machine repairmen and electricians are trained to inspect equip-

ment during routine servicing. This system requires very conscientious people.

● **Stuart A. Snyder, *Maintenance Control Div., Public Works Dept., U. S. Naval Gun Factory, Washington, D. C.***

Good planning and scheduling are paramount to a good maintenance program, but are only a part of the program. The key factors in achieving good planning and scheduling are:

1. Providing personnel whose full time duties or at least primary duties are to handle planning or scheduling functions in your maintenance organization.

2. Knowing enough about each maintenance requirement and job so that they can be broken down into bite size operations.

3. Providing routine procedure for carrying out the necessary planning and scheduling functions.

What's the Law
(from page 57)

the employer, where a machine for cutting the coal was in use, and became permanently disabled by reason of carbon monoxide poisoning as the evidence was sufficient to establish that the disability was caused by accidental injury received in the course of employment. The record showed that due to the fact that the ventilation in the area where the employee was working was restricted, the heat of the machine and the lack of fresh air caused the claimant to become ill and lapse into a state of physical exhaustion. The claimant was treated for the ailment and was on at least two occasions thereafter hospitalized. The record further showed that the claimant was permanently disabled by reason of carbon monoxide poisoning. The court disallowed the employer's contention that there was no evidence that there was carbon monoxide gas in the mine. Affirmed.

Lone Star Steel Co. v. Sutmiller; Oklahoma Supreme Court. No. 37,812. November 26, 1957.

DERMATITIS—Arising Out of Employment

An employee of a bedspread factory, whose duties included removing materials from dye vats, was not entitled to compensation for a chronic dermatitis infection on the palms of his hands and the soles of his feet because of his failure to sustain the burden of proving that his disability arose out of and in the course of his employment. The evidence indicated that infectious teeth or a fungus infection might have caused the pustular eruptions on the employee's hands and feet. Three physicians' testimony indicated that the dye and moisture with which the employee came in contact might tend to gradually increase the degree of severity of the infection but would do so no more than taking a bath at home as plain soap and water would be equally aggravating. The court held that the employee did not sustain the burden of proving that his disability arose out of and in the course of his employment. Affirmed.

Rittenhouse v. United States Fidelity & Guaranty Co.; Georgia Court of Appeals No. 36,853. September 25, 1957.

14,000th Wise Owl Honored

Reuben G. Knutson, chairman, Wisconsin Industrial Commission, inducted Leonard Werbie, a 32-year old foreman employed at Kenosha Automatic Products Co., Inc., Kenosha, as the 14,000th member of the Wise Owl Club of America. The ceremony was conducted at the Mid-Winter Occupational Safety Conference, sponsored by the Wisconsin Council of Safety in Milwaukee.

Like other club members in more than 1,960 plants in all 48 states, Canada, Hawaii, Puerto Rico and Cuba, Werbie was honored for saving his vision by wearing safety eyewear at the time of an on-the-job accident.

Werbie, who has only limited vision in his left eye, narrowly escaped the loss of sight in his right eye when a grinding wheel broke and hurled a jagged fragment against the right lens of his safety glasses. Although damaged by the impact, his safety glasses prevented any injury to Werbie's eye.

Werbie is an ardent outdoor sportsman and takes great pleasure in skating, tobogganing, swimming and fishing with his children. An amateur horticulturist, he spends a great deal of his leisure time raising and experimenting with unusual plants.

"I hate to think," commented Werbie, "what would have happened to my family life if I hadn't been wearing safety goggles at the time of the accident."

Acting on behalf of the National Society for the Prevention of Blindness and its Wisconsin Committee which sponsors the Wise Owl Club, Commissioner Knutson presented a special membership certificate, Wise Owl lapel pin and shop badge to Werbie.

No Curtain of Darkness

"In saving your vision," Commissioner Knutson told Werbie, "you have prevented the curtain of blindness from darkening not only your own future but that of your family. You have set an example that should be followed by all industrial employees in Wisconsin, and in fact in the other 47 states as well."

"Your fortunate experience," he said, "has ably demonstrated the tremendous benefits that flow from intelligent eye protection programs. While the extent of these benefits should be measured principally in human terms, they also represent sizable monetary and production savings for management whether 22 people are employed, as in the case of Kenosha Automatic, or 22,000."

The National Society for the prevention of Blindness estimates that Wise Owl Club members represent a saving of at least $60 million in compensation awards alone, but adds that more than 300,000 eye accidents still occur annually in U. S. plants—90 percent of them "needless and preventable."

Vacuum Cleaning Role
(from page 18)

stance, could create a critical problem during flight. And vacuum cleaning is the only quick, thorough way of removing metal shavings according to Spencer Turbine Co. Cleanliness, made practical by the use of industrial portable vacuum cleaners, is a vital part of Boeing's quality control program.

inside the trade

Appointments of *G. Duane Franklin* as manager of painter sales and *E. Douglas Henrick* as administrative assistant have been announced by *Guy Berghoff*, general manager of paint sales for the merchandising division of *PITTSBURGH PLATE GLASS COMPANY*. Mr. Franklin, formerly supervisor of painter-maintenance sales for the Houston, Texas, distributing branch, transfers to the Pittsburgh general offices.

Mr. Henrick, who fills a newly-created position on the general office paint sales staff, had served as supervisor of maintenance sales for the merchandising division since 1955.

J. J. Durkin has been named Seattle District Manager for the *"AUTOMATIC" SPRINKLER CORPORATION OF AMERICA*, acording to an announcement by W. E. O'Neill, Sales Manager. "Automatic" has sales, engineering, and fabricating facilities in Seattle at 610 W. Idaho Street. Durkin has been a Contracting Engineer for the company in New York City since 1946.

Raymond L. Fawcett, Jr.

The opening of a complete *Safety Equipment Supply Center* has been announced by *George Schopick*, President of *BRIDGEPORT INDUSTRIAL PRODUCTS, INC. Raymond L. Fawcett, Jr.*, has joined the organization as Sales Manager.

Mr. Fawcett has had many years of experience in the fields of accident prevention and industrial safety. He was associated with the Electrolux Corp. and The Bryant Electric Division of Westinghouse Corp. as Supervisor of Safety. Prior to joining The Bryant Electric Co., he was Connecticut Sales Representative for the Pulmosan Safety Equipment Corp. of Brooklyn, N. Y. He is a member of the National Safety Council, Bridgeport Safety Council, Connecticut Safety Society and he is past President of the Stamford Safety Council.

Mr. Schopick has been an active member of the Bridgeport Safety Council for many years. He is also a member of the Employee Health and Benefits Committee of the National Association of Manufacturers and the sub committee for Employee Health. He has attended President Eisenhower's Conferences on Occupational Health and Safety held in Washington, D. C.

The constantly growing requirements of Connecticut industry for Safety equipment and supplies will be met by the opening of this complete safety supply center.

STRONG, CARLISLE & HAMMOND, an arm of White Sewing Machine Corp., has organized a new division to serve industry with a complete line of safety equipment and supplies.

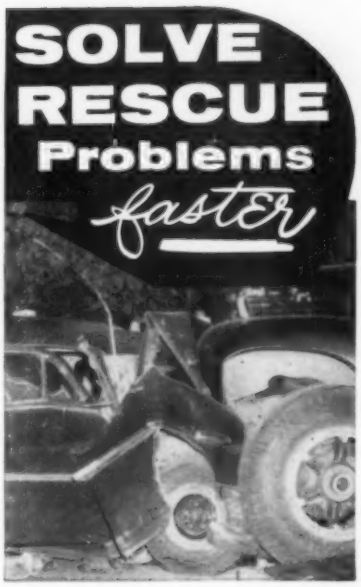
To manage this Safety Equipment Division, *Louis J. Lackner*, an experienced industrial safety director for more than 15 years, has been appointed to handle distribution of safety clothing, guards, respirators, safety eyewear, breathing apparatus, masks, fire extinguishers and other protective products.

Known in the mill supply industry for many years, Strong, Carlisle & Hammond will open its Safety Equipment Division at 1392 W. 3rd St., Cleveland 13, Ohio.

Major changes are announced in the organizational structure of *NATIONAL CYLINDER GAS COMPANY*. *Charles J. Haines*, president, said the firm's diversified activities are being realigned into seven divisions each with its own president and operating organization.

The company's medical gases, inhalation therapy equipment, and oxygen piping sales and service activities will be included in the Chicago-based NCG Division which also produces industrial gases, welding and flame-cutting equipment. *J. L. Adank* has been named president of the division and *Fred C. Heppel* executive vice president. Mr. Heppel will also be president of NCG International, new foreign subsidiary which will operate the company's gas-producing business in Canada, Venezuela, Colombia and other countries. *R. W. Burmeister* continues as manager of medical sales and services.

The other National Cylinder Gas Company divisions and their chief executives are Tube Turns, Louisville—*John G. Seiler*, president; Pennsylvania Forge Company, Philadelphia—*James S. Kerwin*, president; Perforating Guns Atlas Corporation, Houston—*Paul J. Charrin*, president; Girdler Construction Division.



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(Use Key # O-23 on Inquiry Card on page 1)

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CLIMBING MADE SAFE!
If climber starts to fall, device locks in a notch automatically, instantly. Holds securely. Limits fall to 7 inches.

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(Use Key # O-24 on Inquiry Card on page 1)

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SERVICE on APPROVED
Point of Operation
Safety Guard for
INCREASING OUTPUT

(Use Key # O-25 on Inquiry Card on page 1)

Louisville—*W. Roberts Wood*, president; Girdler Process Equipment Division, Louisville—*John E. Slaughter Jr.*, president; and the Chemical Products Division, Chicago—*Walter H. Girdler Jr.*, president.

THE WITT CORNICE COMPANY, Cincinnati, Ohio, has appointed *Lawrence V. Lindgren* as its Assistant Sales Manager, according to an announcement by *Stuart J. Swensson, Jr.*, Secretary and General Sales Manager. Mr. Lindgren brings over ten years' sales and promotional experience to his new position. He was formerly associated with Barclays Bank (DC and O) and the Selective Insurance Company of Cincinnati.

The 100th anniversary of the founding of *BEMIS BRO. BAG COMPANY* will be observed throughout 1958 with activities designed to emphasize the company's basic anniversary theme—"Entering our second century of skill, vision, and progress."

The company was founded in 1858 in St. Louis, Missouri, by Judson Moss Bemis, grandfather of F. G. Bemis, present President. The enterprise which started in the loft of a small building on the St. Louis levee has grown to a nationwide organization of textile, paper and plastic packaging plants, cotton and paper mills, and paper specialty plants that provides American commerce and industry with well over a billion bags and other forms of flexible packaging every year. Today, there are more than 8,500 Bemis employes working in 27 plants and mills and 30 sales offices throughout the nation.

A broadening of its Sales Division at the management level to establish three new sales managers' positions was announced by *AMPCO METAL, INC.*, producers of bronze alloys and products.

The three new Sales Managers, all reporting to *J. P. Henry*, Vice President and General Sales Manager, are *F. E. Garriott*, Sales Manager of Finished Products; *I. S. Levinson*, Technical Products, and *G. E. Brown*, Field Sales.

Garriott, with Ampco since 1944, was former Manager of the Weldrod & Wire Dept. Levinson was Product Manager in Charge of Process Industries Sales and has been with Ampco since 1949. In his 11 years with the firm, Brown has held various sales assignments, the most recent being Wisconsin District Manager.

Harleston R. Wood, President of *ALAN WOOD STEEL COMPANY*, announced a series of changes among the Company's executive personnel.

Charles L. Jones, who has been Secretary and Treasurer of the Company since September, 1949, retired from those positions in accordance with the Company's pension plan.

Howard W. Reed who previously held the title of Vice President and Comptroller was elected Vice President, Planning and Control and will assume responsibility for all the Company's planning, financial and corporate secretarial functions.

Lawrence G. Campbell, formerly Assistant Treasurer, was elected Controller in which position he will have supervision over all accounting functions of the Company.

William M. Webb, formerly Assistant Secretary, was elected Treasurer of the Company and *W. Bruce Cashmore*, previously Assistant Secretary, was elected Secretary of the Company.

Gordon R. Krecker, formerly Supervisor of Accounting, and *Augustus D. Lagomarsino*, previously Budget Director, were elected Assistant Controllers of the Company.

Robert M. Thomas

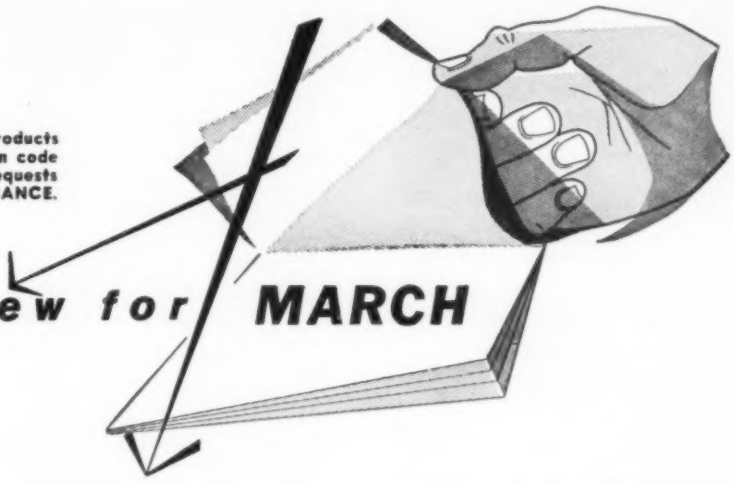
Robert M. Thomas has been appointed Sales Manager for *EDMONT MANUFACTURING COMPANY*, Coshocton, Ohio. With the glove manufacturer since 1951, Mr. Thomas has served as sales office manager, sales representative in the Cleveland-Pittsburgh territory, special field representative and regional sales manager of the eastern division. According to *R. L. Prindle*, Edmont's executive vice president, Mr. Thomas will be in charge of the company's national sales organization, export sales and the sales office in Coshocton.

A new safety engineering firm has been organized in Dallas to serve the Dallas-Fort Worth area with safety supervision and services, *William R. Orr*, Chairman of the Board, has announced. *SAFETY ENGINEERS, INC.* has opened its offices at 518 West Davis in Oak Cliff. *Kirk Gregory*, a civil engineer, will be general manager of the new company.

The new company will provide safety inspections and safety checks on construction projects of any size in the Dallas-Fort Worth area. Mr. Orr pointed out that a staff of registered engineers will be available for service with the new company.

Material appearing in this section is published as information and is not intended to imply endorsement or guarantee by SAFETY MAINTENANCE.

To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.



what's new for MARCH

YELLOW NEOPRENE APRON

(Use Key # 701 on Inquiry Card on page 1)

A NEW yellow neoprene apron (No. YL-1-RE) with extra comfort, safety and wearing features is being introduced by the Plasco Safety Products Co. The apron is full cut and is 45" long. Has wide tape neck ties for comfort and is reinforcerd across the entire top of apron and all other points where tape joins. Its yellow color is a recognized safety feature and the reinforcing belly patch is open at the bottom so liquids cannot collect. Stitching on patch is re-coated with plastic to make apron leak-proof.

APPROVED CLEANER FOR CONDUCTIVE FLOORS

(Use Key # 702 on Inquiry Card on page 1)

SPAL Concentrate Detergent, a product of Huntington Laboratories, Inc., has been listed by Underwriters' Laboratories, Inc., as a safe cleaner for conductive floors. Spal is part of a complete maintenance program for conductive floors. The Huntington conductive floor wax is also listed by U.L.

Spal cannot form an insulating film of lime soap, nor does it precipitate insulating oils or fillers. It can be used on conductive floors to remove an accumulation of old wax or for routine cleaning. A brochure, listing precautionary measures for dissipating static electricity in the operating room and containing information on conductive floor maintenance, can be obtained from the company.

FULL-FOOT PROTECTIVE SAFETY SHOE

(Use Key # 703 on Inquiry Card on page 1)

THREE independent steel plates overlap up the front of this new safety shoe to extend steel toe protection to the entire forepart of the foot. "Floating Bridge" over the ball joint flexes with the foot, permitting normal walking comfort—has extended wing to protect small toe area. Balljoint and instep shields have a tough,

vulcanized Neoprene coating that resists severe abrasion. Instep shield buckles over the lacing—cannot be removed from the shoe. Heavy-duty, oil-resistant Neoprene-Cork outsole and heel provide excellent skid-resistance, maximum service in the most gruelling conditions. For yard gangs, riggers, drillers, construction crews, truckmen, any man handling heavy materials, this new design offers the first dependable protection above the conventional steel toe, in the form of a regular work shoe. Available in widths D and E, sizes 8 to 13; Stock No. 1518, from Lehigh Safety Shoe Company.

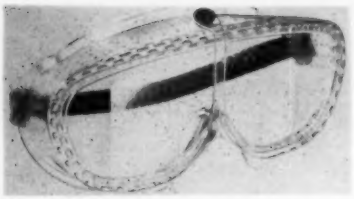
OVERDRIVE GUARD FOR POWDER TOOL

(Use Key # 704 on Inquiry Card on page 1)

A NEW powder-actuated fastening tool, which stops an overdriven fastener in its tracks, thereby eliminating the danger of firing through a thin work surface, has been introduced by Ramset Fastening System, a division of Olin Mathieson Chemical Corporation. Called "Flite-Check," the tool can be used safely where restrictions have limited the use of powder-actuated tools.

Control of the fastener is accomplished by a new assembly whose tapered interceptor jaws prevent the passage of an over-powered fastener or one that encounters a soft or thin spot in the work surface. The fastener is stopped before it leaves the tool. When the fastener is stopped in this manner, the operator simply pulls the tool off the work and is ready for another fastening. There is no damage to the tool.

The arresting device in the new tool is completely automatic and does not slow down its operation. It is simple to use and is designed for threaded studs. The new tool is expected to find its greatest use in industrial plants for such jobs as fastening electrical fixtures, partition plates, ducts, plumbing lines, machinery mounts, and similar applications. Special fixtures and locating devices can be designed for Flite-Chek upon request. The new tool uses ¼-inch fasteners with special plastic tips.



VENTILATED LIGHT-WEIGHT GOGGLE

(Use Key # 705 on Inquiry Card on page 1)

A NEW low-cost, high-protection eye shield, Super BAL-guard, has been developed for industrial workers by Bausch & Lomb Optical Co. Molded from clear, flexible vinyl and weighing only two ounces, it provides an unusual degree of wearing comfort and eye safety. An all-purpose coverall, it can be worn over any type of prescription glasses.

Super BAL-guard features a 2-way ventilation system to assure a plentiful air supply with no lens fogging. Special double-slot vents around the periphery of the lens give indirect air circulation. Top and side vent holes allow additional fresh air to enter, warm air and vapor to escape. For use where splash, chemical or dust hazards are present, the eye shield can be obtained without the top and side holes.

Of special importance to bifocal wearers, whose visual field is restricted by ordinary eye shields, is the large wrap-around lens. This one-piece lens is angled to the face to give more over-all and downward field of vision. Available in either clear or green, lenses can be easily interchanged or replaced by use of a new snap fastener design.

WATER PICK-UP MACHINE

(Use Key # 706 on Inquiry Card on page 1)

A NEW water pick-up machine that eliminates mopping up and wringing out, "SpeedDry," recently introduced to the building maintenance trade, suctions sudsy water and dirt from floor along its entire 24" wide intake head—not just at center of head. Made by Nobles Engineering & Mfg. Co., the self-contained unit is completely portable and does not require hoses, wands or attachments. It is not a squeegee type machine. The operator merely walks with "SpeeDry" through wet area leaving a dry floor behind. It picks up water moisture between tile seams and floor cracks. Works equally as well on wood, tile, concrete or asphalt surfaces. Rubber wheels at each end of intake head permit it to be used flush against wall without marring.

LIGHTER WEIGHT FIRE DOOR

(Use Key # 707 on Inquiry Card on page 1)

DEVELOPMENT of new flush hollow-metal doors with a 3-hour Class A fire rating has been announced by Overly Manufacturing Company. Featuring a standard heavy duty mortise lock instead of the industry's commonplace three-point lock, the Overline doors become the first doors so equipped ever to merit the Underwriters' Laboratories "A" label. The door is lighter in weight and less expensive to produce.

These new Overline doors will enable architects and building owners to install "A" label doors providing maximum fire protection at the most favorable insurance rates for the same cost as "B" label assemblies. In testing the new doors, Underwriters' Laboratories subjected the doors to temperatures as high as 1925° F. during three hours of burning. It marked the first time that a pair of doors with single point locks had ever been tested for three hours. These Overline doors are also qualified to carry B, C, D and E labels.

"A" label doors are used in firewalls or division walls, switch gear and transformer rooms, film and record storage rooms, boiler, heater and compressor rooms, chemicals, oil and paint storage rooms, and in any area of high hazard.

NEW PLASTIC APRON

(Use Key # 708 on Inquiry Card on page 1)

THE Singer Glove Mfg. Co. has developed a new plastic apron that is unusually soft and flexible and because the plastic material resists aging the apron stays that way. Fire-retardant, it will withstand temperatures to 300 degrees F. and won't crack, peel or deteriorate when subjected to -35 degrees below Zero F. Longer service results from its greater resistance to oil, grease, acid and fatty acid. Also available in sleeves.

WATER-STEAM JET CLEANER

(Use Key # 709 on Inquiry Card on page 1)

AT the National Plant Maintenance and Engineering Show, Pantex Manufacturing Corporation displayed its latest development in heavy-duty jet cleaning equipment, the Hydro Steam-Jet Cleaner. With this self-contained, all electric unit, the operator has continuously available, scalding hot water, and/or saturated steam, at pressures up to 185 psi. Separate light-weight lances are provided for directing the scrubbing jets of steam or hot water at high velocity on the equipment or surfaces to be cleaned. The nozzle of the Steam Lance is easily rotated by the operator to reach otherwise inaccessible areas and corners. Detergents or solvents are automatically added to the hot water or steam-jet, under close fingertip control of the operator. The built-in "Speedylectric" Steam Generator is ASME Code Stamped, U.L. Listed and Approved by Canadian Standards Approvals Laboratories. It is available for 220, 440 or 550 volt, 3 phase, 60 cycle power supply. According to the manufacturer, the unit gives fast, effective, cleaning action, requires little or no maintenance and is completely free from the low water hazards and fire dangers of fuel burning equipment. Although designed primarily for stationary installation, this Hydro Steam-Jet Cleaner may be made portable at extra cost.

INSULATED HEAD PROTECTION

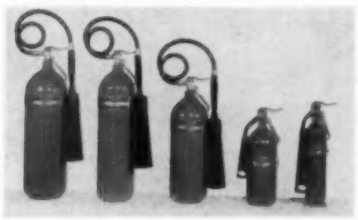
(Use Key # 710 on Inquiry Card on page 1)

PROVIDING a new design in insulated head protection, the Bullard KV short-brimmed hat or cap provides protection to head and neck against impact from

falling or flying objects and from electric shock and burn. Manufactured from the Bullard developed plastic Estherene, the KV short-brimmed hat has no metal in the hat suspension or chin strap. New Estherene, is a tough, non-aging material that guarantees the wearer maximum shock absorption and minimum shock transmission to the head and neck. These hats pass the mechanical proof test (8-pound ball dropped five feet), electrical proof tests and all other tests as specified by the Edison Electrical Institute and Federal Government.

The hat will tolerate prolonged temperatures ranging from below minus 25 to plus 180 without distortion. Weighing less than 12½ ounces with non-conducting elastic chin strap, this hat is easily recognized by its three-ribbed crown and the Trade Marked lightning streak insignia on the front.

Bullard insulated safety hats have the under brim of visor painted with non-metallic green to reduce glare and eye fatigue. Hat colors include white, yellow, gray and orange. Plastic wedges stitched around the sweat band fit into molded hangars inside the shell. Sweat bands are made of two types of material—leather or non-toxic vinyl. The crown straps of the suspension are assembled to distribute the impact of the blow equally to all areas of the head.



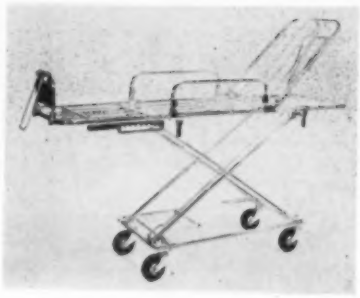
CARBON DIOXIDE EXTINGUISHERS WITH NEW NOZZLE DESIGN

(Use Key # 711 on Inquiry Card on page 1)

A NEWLY designed discharge device is now provided on five American LaFrance carbon dioxide fire extinguishers to give added protection against Class B and C fires. In addition, each carries the new Underwriters Laboratories ratings.

With the new design, nozzles have five orifice holes. The usual opening in the center of the nozzle discharges parallel with the taper of the horn. The other four openings are placed around the nozzle, 90° apart from each other. Discharge from these four is at right angles to the side of the horn. This placement enables the snow to break into minute particles, giving almost instant change from snow to gas. This new concept is said to give faster and more effective extinguishment of the fire.

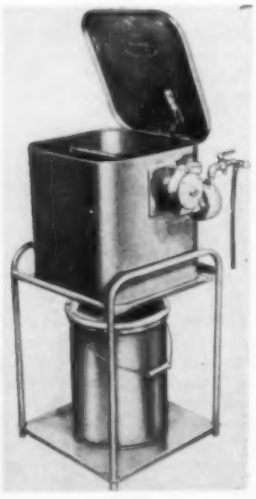
Models equipped with new nozzles are 2½, 5, 10, 15 and 20. Models 5 and 15 are also Coast Guard approved. For large blazes beyond the capacity of hand portable units, CO_2 Wheeled Engines are available in 50, 75 and 100 lb. sizes.



ADJUSTABLE-LEVEL COT

(Use Key # 712 on Inquiry Card on page 1)

NEWEST idea from Ferno Manufacturing Co. is the All-Level Cot for ambulances and first aid. Made of Alcoa tubular aluminum, the new cot raises or lowers to seven different positions, from 10" to 32", and locks in place to afford maximum patient security. The All-Level Cot readily conforms to the exact height of hospital beds, home beds, and examination tables. Once placed at a certain level, the cot cannot be lowered unless the attendant assumes the weight of the patient—thus assuring patient safety. When positioned at the lowest level, the All-Level Cot (with four-inch wheels) is only 10 inches from the floor of the car (11 inches with five-inch wheels). Designed to fit any standard cot fasteners. Plastifoam and foam mattresses at slight additional cost. Also optional is a patient-comforting contour feature.



AUTOMATIC MASK WASHER

(Use Key # 713 on Inquiry Card on page 1)

CLOGGED spray masks are cleaned completely free of paint deposits in this automatic mask washer made by The Protectoseal Co. Production delays for mask cleaning are eliminated, spray masks are always ready for instant use, and parts spoilage caused by dirty, inaccurate spray masks is reduced to a minimum.

This compact, portable cleaning station may be set beside the spray booth or at any convenient location; the air motor operates on any compressed air supply; and the entire unit occupies only 2¼ sq. ft. of floor space. The complete station consists of a sturdy, electrically seam welded steel wash tank containing a crankshaft on which the masks are hung in the cleaning solvent. An air-operated motor provides a rotary motion to the crankshaft holding the masks to clean both sides with a single setting. Tank cover contains a fusible link which melts in the event of fire in the cleaning solvent, closes cover to snuff out the flame and protects both operator and plant.

The wash tank occupies the upper shelf of a sturdy tubular steel stand at a convenient working height. A special fire-protective 6-gallon container on the lower shelf receives paint saturated waste solvent from the wash tank through a drain valve.

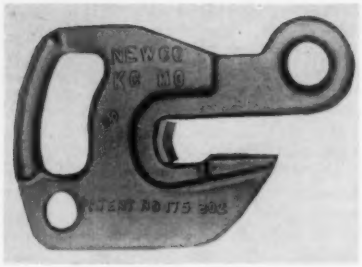
There is no air-agitation of the solvent. Tests indicate that the air injection principle of washing is unsatisfactory and releases a hazardous volume of solvent vapors. With an air engine employed as the power unit, however, there is a minimum release of vapors and no possibility of a spark igniting these vapors.

WET-DRY DRUM VACUUM

(Use Key # 714 on Inquiry Card on page 1)

DESIGNED for big volume pick-up of either wet or dry materials, this "Hydro-Jet" power head adaptor unit converts any 30 or 55 gallon drum to a high-powered suction machine for pick up of oils, dust, grain, water, metal or wood chips, shavings, etc. The large capacity eliminates the need for frequent emptying.

The unit, made by Advance Floor Machine Co., is equipped with a 1 H.P. moisture-proof, dust-proof motor, and a 3-stage fan to provide maximum suction. The sealed vacuum system develops a 78" water lift. Hoses and fittings are available with either a 1½" or 2" orifice. The 2" hose and fittings make possible pick-up of larger objects. An automatic shut-off prevents accidental overflow of liquids. Suction automatically stops when the drum is filled. The machine is also equipped with a blower that can be used to blow dust and chips out of motors, lathes, etc. The power head can be easily lifted off and transferred from one drum to another. A dolly is available for transporting the machine.



HOOK FOR THIN-WALL PIPE

(Use Key # 715 on Inquiry Card on page 1)

THE NEWCO Mfg. Co. has designed a new potential pipe hook for the handling of thin-wall beveled-edge oil or gas pipe. The new pipe hook has a 1" throat opening and a wide flange lip to give more bearing surface. A soft brass insert has been placed in the neck so that no damage can be done to the beveled edge. This new hook is a steel casting with 79,000 P.S.I. tensile, weighs 8½ pounds, and has a rated safe working load of 8500 pounds.

ALL-PURPOSE SWEEPER

(Use Key # 716 on Inquiry Card on page 1)

INDUSTRIAL Sweeper Company has announced production of a new, rugged, all-purpose power floor sweeper—the Hydra-Sweep "51." It has been designed for use in medium to large manufacturing plants, shopping centers, parking areas and airports. Hydraulically driven, the "51" is reported to be capable of industry's toughest, dirtiest sweeping jobs. The new sweeper also has several operator-safety features including one-pedal "Magic Touch" drive, wrap-around bumper, retractable side brooms and a design that permits the operator to look ahead while sweeping.

The "51" is equipped with one adjustable side broom that enables it to sweep aisles from 36" to 51" in width. An additional side broom is available, bringing total sweeping width up to 66". All brooms operate at a constant speed independent of forward speed of machine.

The sweeper has a minimum floor clearance of 3"—large enough to permit pickup of 2 x 4's, newspapers, tin cans and pop bottles. A specially designed, high-volume dust collecting system draws dust from the enclosed brush compartment through a primary cyclone separator into an easily cleaned filter. The Company reports two advantages in this system: 1, no need for conventional, unwieldy dust bag and 2, vacuum fan is protected from dirt.

The Hydra-Sweep "51" can also double as a tow truck. Wheeled loads weighing up to 7 tons can be moved at a speed of 7 mph. For this purpose the "51" is equipped with a heavy duty tow-eye. Optional equipment includes a 12' vacuum hose, with nozzle, for cleaning hard-to-get-at places under and around machinery, bins and shelving. The Company also manufactures a new economy sweeper called the "36."

WATERLESS CLEANER MEETS NEW U. S. STANDARDS

(Use Key # 717 on Inquiry Card on page 1)

A NEW waterless hand cleaner by Milburn Co. complies with standards for waterless hand cleaners developed by a recent research of the U. S. Armed Forces and the specifications now awaiting approval.

Ply waterless hand cleaner derives its cleansing action from a water soluble synthetic wetting agent. It contains no petroleum solvents, abrasives, scrubbers or any component which is not soluble in water. It is low-alkaline, with a pH of 8 or less, and has no adverse effects on rubber or fabrics.

The research field tests found that the normal pH of the skin was recovered within 15 minutes after use of this type of cleaner. No drying-out or defatting effect was reported. Field tests also found that waterless hand cleaners were more effective than ordinary soaps in removing tenacious soils—such as tars, paints, inks, rubber cements, etc.

Ply waterless hand cleaner is designed to promote cleanliness in plant areas remote or not conveniently laid out for access to regular washroom facilities. It may be used with or without water for removal of hard-to-get-out or irritating soils. Its availability minimizes workers' use of irritating solvents or degreasers for cleanup. The waterless cleaner is also recommended for outdoor workers—road gangs, field crews, pipeline and right-of-way crews, maintenance, etc. It is available in cream form, in standard 1-lb. jars or in 80-oz. units for use with wall dispensers.

SPECTACLE FOR PLANT VISITORS

(Use Key # 718 on Inquiry Card on page 1)

INDUSTRIAL Products Company announces a new low-cost spectacle designed to be given to plant visitors to wear while on tour and to take home with them. Attractive in appearance, it comfortably fits all faces—men and women—with or without correction glasses. Weighs less than one ounce.

Frame is styled in the new eye shape and is molded of cellulose acetate in the popular demi-amber color. Lenses are curved, crystal-clear CR39 plastic, .052" thick for impact resistance. 50mm size provides a broad area of coverage. Each spectacle is furnished complete in a sealed cellophane envelope. Low cost makes the Ipco visitor's Spec practical as a give-away item. Eliminates cleaning, sanitizing and repackaging standard safety spectacles.

WELDING SCREEN KIT

(Use Key # 719 on Inquiry Card on page 1)

A NEW portable screen, called "Porto-Screen," is being produced in economical kit form by Frommelt Industries. The kit includes hinges, tees, treated fabric, and hooks, and is designed to be assembled with any stock ½-inch pipe or tubing supplied by the customer (indicated in picture by dotted lines).

Porto-Screen can be assembled in minutes with an Allen wrench to form a rugged, fireproof welding shield for "on-the-spot" protection from flash, arc, sparks, splashing, hot chips, or flying abrasives. The kits are designed around a standard 6' x 12' size with a 6' center section and 3' wings. Other stock sizes include 6' x 9', 5' x 12', and 5' x 9'. Special sizes are available and will be quoted on request.

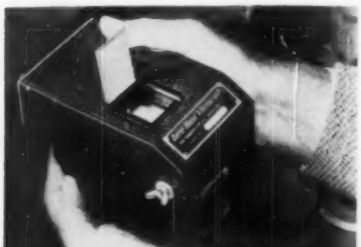
Specially designed cast-steel hinges permit the screen to be formed completely around the job, or to be folded compactly for storage or carrying. Standard casters can be attached to the vertical tubing sections for easier handling in the shop. Available with rugged, heavy-duty yellow or green UL-Approved duck which is treated to resist fire, water, and mildew. Grommets are provided for hooks and lacing.

BATTERY POWERED SWEEPER

(Use Key # 720 on Inquiry Card on page 1)

THIS new Model 2436, Wilshire, Battery powered "Electrisweeper" was introduced at the 1958 National Plant Maintenance and Engineering Show. It incorporates an exclusive combination of features in addition to improved sweepability and rugged construction. These features include standard automotive cam and lever shockproof steering; foot accelerator with automatic power release; electric forward and reverse control (without shifting gears); fingertip

control mounted on steering column for operating hydraulics; master control panel with all switches mounted in front of operator and key lock master switch; foot operated hydraulic brakes on both rear drive wheels and manual parking brake. The all new dust system with its high volume impeller type blower delivers dust into a separator chamber which allows the heavier dust to be dropped before reaching the 5¾ cubic foot filter. The filter automatically empties when the hopper is dumped, therefore avoiding removal of filter or air blow back for cleaning. By using two twelve volt industrial type batteries with a minimum of 360 amp. hours, the unit can sweep a full 8-hour sweeping shift without recharge.



VIBRATION RECORDER

(Use Key # 721 on Inquiry Card on page 1)

THE Davey Hand Vibrograph is a compact self-contained instrument for making permanent records of machinery vibration on a continuous paper chart. It measures amplitude and frequency. Wave forms are said to be shown in the minutest detail. A salient feature is an instantaneous external adjustment which selects the degree of magnification desired, giving 40, 20, 10 or 5:1 ratios. No battery or outside power source is required. A carbon shod ball bearing probe is provided for taking measurements directly on the surface of rotating shafts.

REPLACEABLE-DECK CART

(Use Key # 722 on Inquiry Card on page 1)

A NEW type of four-wheel FloorMaster freight cart with a removable and replaceable hardwood deck has been introduced by Lewis-Shepard Products, Inc. Completely steel-bound for protection from undue wear-and-tear, the ⅞-inch hardwood deck is replaced simply by removing six screws. This feature adds years of operational serviceability to these new carts.

For additional deck protection, formed-steel deck ends are included on all carts as standard equipment. The carts are offered in capacities to 2000 pounds, with 6- or 8-inch wheels of rubber or plastic. All have a blackboard, tubular bill holder and full-width push bar. Wheels have sealed roller bearings that eliminate periodic lubrications. The sealing excludes water, dirt and other foreign matter while retaining the lubricant. All that is required is a once-a-year purging of old, ineffective grease.

Two different deck sizes are available, 32- by 40-inch and 32- by 48-inch. Offered as optional equipment are a cam-type in-floor dragline pin; chain and ring for in-floor dragline line use; overhead chain and rod for overhead draglines; and a hand-operated brake.

SHATTERPROOF PLASTIC WINDOW

(Use Key # 723 on Inquiry Card on page 1)

AN easy-to-install metal and plastic window that requires almost no maintenance has been developed by the Resolite Corporation. Pre-assembled with panes of shatterproof Resolite translucent Fiberglas-reinforced plastic in aluminum or steel frames, and in pivoted or projected units, the new lightweight windows pass almost as much light as clear glass—a soft, diffused light that eliminates glare and reduces workers' eyestrain.

Called Reso-Lite-Vents, the new windows are recommended for commercial and industrial use where large ventilated areas and glare-free light are specified. Ventilation is provided by the entire window area. Many of the separate operations normally required to install windows—detailed drawings, special framing members, glazing and painted—are eliminated with Reso-Lite Vents, the maker says. They are available in a wide variety of sizes, are shipped ready to install, and may be erected in conjunction with corrugated metal sheeting, translucent plastic corrugated panels, or masonry.

CAR DROPPER'S BELT

(Use Key # 724 on Inquiry Card on page 1)

ROSE Mfg. Co. announces production of the new Safe-Hi Car Dropper's Belt to give needed protection to workmen during car-switching, and for a variety of other occupations.

One of the features of the new Safe-Hi Car Dropper's Belt is its 1½" throat opening drop-forge snap for attachment to ladders, pipes and similar objects. The belt also has a quick release metal-to-metal buckle, and is made of 5000 lb. nylon webbing. It is a completely adjustable nylon waist belt. The exclusive Safe-Hi metal-to-metal buckle and nylon webbing give extra safety and extra-long wear. May be obtained in any color desired.

SAFETY SURFACE

(Use Key # 725 on Inquiry Card on page 1)

CIDCO "Non-Slip" is a paint-like product which can be applied to any contour and any material whether rigid or flexible. Flexible, non-abrasive particles are contained in an elastic mastic. After application both the carrier and the particle remain permanently resilient. This produces a surface which is: slip resistant, long wearing, quiet, cushioning, non-abrading, noise absorbing, non-sparking.

The material can be applied by spraying, brushing, troweling, rollering, dipping, or spreading with adhesive type spreaders on floors, stairs, ramps, etc. It adheres to metal, concrete, wood, plastics, glass, ceramics, leather etc. and can be used in the presence of a wide range of chemicals and solvents. At room temperature it dries tack free in a few minutes and attains full strength in 24 to 48 hours. Elevated temperatures hasten the curing. Available in colors. Made by California Industrial Development Co.

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SEND THIS PERSONAL SAFETY MESSAGE

TO EVERY ONE OF YOUR EMPLOYEES!

Safety is made attractive...vivid...colorful...

each worker clearly sees how safety benefits him.

You get enthusiastic safety cooperation instead of

tolerance...from every employee...every month.

YOUR
Safety News
PUBLISHED IN THE INTEREST OF YOUR SAFETY
THE JOHN DOE COMPANY, INC.
PROTECT YOURSELF
3
WAYS
There are three safe practice ways that do the most good in keeping free of accidents, all based on your personal desire to know safety and keep yourself safety-minded by studying the hazards of your work. They are
1 Make sure all guards are in place and working and wear the personal protective equipment your job requires.
2 Learn the safe way to do a job and do it just that way.
3 Report, avoid or eliminate all unsafe conditions.
As we see it: Safety is part of every job and like any craft it requires skill.
John Doe

Size 8½" wide x 9½" deep

...talks the worker's language!

Full of color, pictures, humor and snap, it makes safety interesting and down-to-earth. 12 times a year it covers every accident hazard. Nationwide, leading industrial firms state it's the *only safety paper their employees will read* . . . and take home to their families.

It gives you the advantages of personal contact, saving time and money. When it prevents one Lost Time accident, it has more than paid its cost for the year. Try it . . . it works!

Your Imprint Here!

makes YOUR SAFETY NEWS your own publication . . . a good-will ambassador . . . another force for better industrial relations.

Every employee feels bucked-up by a note from the boss. If you desire, your facsimile signature can be printed here.

Your Signature Here

NOTE:

Your Safety News is designed to promote better employer-employee relations. Every item is carefully weighed from this viewpoint.

INSIDE PAGES
(pages 2 and 3)

So Goes the World
Lions & Machinery have Hungry Jaws
YOU DON'T HAVE TO TWIST ITS TAIL
NEVER REACH INTO MACHINERY WHILE IT IS RUNNING!
Guard Well
WANTED
from the CARELESS ACTS of others the WISE MAN corrects his own
SAFETY SHOES
WORK OVERTIME
Dress for Safety
SAFETY SHOES
FALLS
FALLS KILL 60 EVERY DAY

IN YOUR EMPLOYEE'S INTEREST

Your employee's self interest in his own safety is always emphasized. Even household hazards are covered to keep him safety-conscious every minute, not only in the plant, but at home and on the way to work.

CHOCK-FULL OF ILLUSTRATIONS

Artwork is carefully chosen to lodge home each point. The cartoon style makes YOUR SAFETY NEWS as familiar and as welcome as the Sunday supplement.

THE "FOLKSY" APPROACH

Keeping the contents folksy, adding the grace note of humor, delivers your safety message with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of tolerance.

VIVID COLOR

Generous use of color gives sparkle, adds to the attention-riveting qualities of YOUR SAFETY NEWS. Each issue is as lively as any news-stand favorite.

HOW TO ORDER

YOUR SAFETY NEWS may be ordered with either the Standard imprint or with your Own Special Imprint. The Standard Imprint reads PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER.

You can personalize YOUR SAFETY NEWS with the name of your firm and the name or facsimile signature of a company representative as illustrated. Give full instructions for your Special Imprint on the order blank below.

Item (1) FIRM NAME. Please show the name of your firm exactly as it is to appear.

Item (2) INDIVIDUAL NAME OR SIGNATURE, if desired. On a sheet of white paper, please show, in black ink, the individual name or signature, if desired, which is to appear each month on the first page of YOUR SAFETY NEWS.

NOTE: Although a personal signature is effective, some firms substitute: SAFETY DEPARTMENT, YOUR SAFETY COMMITTEE, A SAFE WORKER, etc.

Clip Out & MAIL TODAY!

ALFRED M. BEST COMPANY, Inc. • 75 Fulton Street, New York 38, N. Y.

Gentlemen:

Until further advised, please publish for us each month_____ copies of YOUR SAFETY NEWS at _____¢ each.

☐ Special Imprint ☐ Standard Imprint

Item (1) — Our Special Imprint should appear as follows:

_____

Item (2) — (If desired) - Please imprint the name or signature shown on the attached sheet of white paper, or the following:

( )

INVOICE TO:

Name_____

Firm Name_____

Address_____

City_____ Zone_____ State_____

PRICES

Per Month	Your Special Imprint	Standard Imprint	Per Month	Your Special Imprint	Standard Imprint
6,001 copies and over	2½¢ each	2¢ each	200 to 500 copies	5½¢ each	4½¢ each
3,001 to 6,000 copies	3¢ each	2½¢ each	100 to 199 copies	6½¢ each	5¢ each
1,001 to 3,000 copies	3½¢ each	3¢ each	25 to 99 copies	*	5½¢ each
501 to 1,000 copies	4½¢ each	4¢ each			

* 5½¢ each plus $3.50 per month. For Special Imprint. F.O.B. New York, N. Y.

STONEHOUSE SIGNS guard against FIRE

In every plant, large and small, fire hazards lurk in unexpected places. These hazards too often explode into the terror of a plant fire . . . destroying lives, property and jobs.

Guard against fires . . . and the losses they inevitably bring . . . with reminder signs from STONEHOUSE. Alert every man in your plant to those potential fire dangers by the use of bright, easy-to-see fire hazard warning signs. Each STONEHOUSE sign is made of enduring, tested materials, and manufactured in accordance with American Standard specifications.

✻ *Write today for our free, full-color, 64 page catalog of thousands of ready-to-ship safety signs, plus information about custom-printed signs to meet your special needs.*

"Signs since 1863"

Stonehouse SIGNS

STONEHOUSE SIGNS, INC., Stonehouse Building, 9th and Larimer, Denver 4, Colorado

(For details, use Key # O-26 on card on page 1)

Thantis® LOZENGES

first aid for throat irritations

SORE THROATS due to coughs and colds, if neglected, may result in lost man hours of work.

THANTIS® Lozenges contain no antibiotic; they produce no unpleasant by-reactions in the mouth.

THANTIS Lozenges relieve pain promptly—reduce infection—act prophylactically.

Twenty-seven years' extensive clinical and lay use has proved the safety and effectiveness of this popular product.

(For details, use Key # O-27 on card on page 1)

HYNSON, WESTCOTT & DUNNING, INC.

BALTIMORE 1, MARYLAND

Mercurochrome®

First aid for wounds . . . . . .

Neglect may cause infection which can be prevented by prompt use of 'Mercurochrome.'® No antiseptic has been proved to be more effective than 'Mercurochrome' for topical application.